ILLINOIS INTERCHANGE
TECHNOLOGY TRANSFER TODAY for TOMORROW T²
BUREAU OF LOCAL ROADS AND STREETS
L.T.A.P. QUARTERLY
Vol. 10 No. 1
Spring 2002

The National Work Zone Memorial: Submission of Names Begins

Memorials have become an icon of the American culture to help people cope with the inexpressible. Whether in the elegant granite face of the Vietnam Veterans Memorial, or through the spontaneous decoration of a fence outside Columbine High School, memorials are built to reflect our grief, our pride, and our humility in the shadow of a power far greater than ourselves.

Over the years, thousands of men and women have died in work zones. Those forgotten not only include work zone workers, but motorists, law enforcement officers, public safety officials (such as fire fighters and emergency medical technicians) and children. Until now, they have not had a fitting memorial. The American Traffic Safety Services Association (ATSSA) plans to introduce a new traveling exhibition in April, 2002, tentatively titled, *"Respect and Remembrance: Reflections of Life on the Road,"* to honor these men, women and children on a continuous basis. The exhibition's centerpiece will be a memorial wall on which the names of those killed in work zones across the country will be inscribed.

In 2000 alone, 1,093 people were killed in work zones.

"What many people do not realize is the high number of motorists, not roadway workers, who are killed in work zones," said Roger Wentz, Executive Director of ATSSA. "This memorial will recognize all people killed in work zones over the years."

ATSSA member companies Eastern Metal/USA Sign, 3M and Reflexite Americas are the principle sponsors, material suppliers and designers of the National Work Zone Memorial. Other sponsors are sought to maintain the wall and contribute in other ways. They too will receive nationwide acknowledgement through

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INSIDE:

Please pass this on to other interested parties in your office.

Illinois Department of Transportation

From the Desk of . . .

Hello and welcome to our first time readers. The Illinois Interchange is just one way that the Illinois Technology Transfer (T2) Center shares with you, our customers, new ideas, technology and information that helps you make informed decisions on appropriate solutions for street/highway problems.

To assist you in sharing the Illinois Interchange, the Center has incorporated in the bottom right hand corner of the front page a block for names of personnel that you wish to pass the newsletter along to in your office. If you choose not to pass the newsletter along you may want to select articles, make copies and tack them up in appropriate shop locations for employees to read. This works especially well with encouraging employee safety.

WE NEED YOUR HELP. On page 11 of this newsletter you will find a class interest survey. We ask that you complete this survey by indicating which classes are of interest and the approximate number of employees that would attend if the classes were scheduled in your area. This survey will be used to locate and schedule classes around the state for the upcoming 2002 and 2003 Technology Transfer Training Program. Our goal is to schedule classes in areas that show interest and make attending more economical for local agencies. Take time to complete the survey and mail or fax it to the Center so we can schedule the classes you want in your area.

We just recently completed the Center's Calendar Year 2001 end of the year evaluation. The evaluation provided some statistics that I thought you would be interested in knowing:

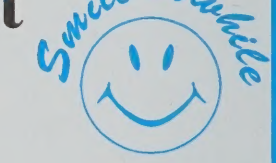
- The Center has 3,916 customers on our mailing list which is used to mail newsletters, brochures, catalogs and other informational items.
- The Center loaned or reproduced 983 videotapes and distributed 2,371 publications which included technical reports, manuals and training handbooks.
- The Center offered 95 classes, workshops or seminars in 17 locations around the state totaling 792.5 hours of instruction to 3,737 students.

The Illinois Department of Transportation, Bureau of Local Roads and Streets' Technology Transfer Centers' mission is to provide you, our customer, with the information to improve skills and knowledge necessary to support your challenges of providing the safest and most economical system of streets and highways for the traveling public. Take advantage of the free services we offer. Look us up on the IDOT web @ http://www.dot.state.il.us/blr/t2center.html.

Willy Scheller

Technology Transfer Program Manager

Great Truths About Growing Old



1. Growing old is mandatory; growing up is optional.
2. Forget the health food. I need all the preservatives I can get.
3. When you fall down, you wonder what else you can do while you're down there.
4. You're getting old when you get the same sensation from a rocking chair that you once got from a roller coaster.
5. It's frustrating when you know all the answers, but nobody bothers to ask you the questions.
6. Time may be a greater healer, but it's a lousy beautician.
7. Wisdom comes with age, but sometimes age comes alone.

IDOT Appoints New Director of Highways

James L. Easterly has been appointed the new Director of the Division of Highways. Mr. Easterly is a Registered Professional Engineer. He holds a Bachlor of Science Degree in Civil Engineering from Bradley University and a Masters Degree in Public Administration from the University of Illinois.

Jim began his employment with the Illinois Department of Transportation in 1964 in District 8's Bureau of Maintenance. He also worked in District 8's Bureau's of Construction and Traffic before becoming Bureau Chief for the Central Bureau of Construction in Springfield in 1992. In 1994, he was named as District Engineer for District 6 in Springfield. In 1998, Mr. Easterly accepted the District Engineer position in Collinsville where he has spent the last four years serving as the District 8 Engineer.

Jim and his wife, Gale, have two children. Jim enjoys all sports, especially golf. Our congratulations to Director Easterly on his new position!

James L. Easterly
Director of Highways

What's New With You?

Quick Snow Fence Roller

The City of Ankeny, Iowa erects 8,000 feet (80 rolls) of snow fence each winter. At the end of the season, rolling up the fence manually would take a crew about two weeks.

Joe Hodapp, an equipment operator with the city, developed a much faster method.

Joe built a quick roller using an old 12-volt, electric over hydraulic pump and spinner motor attached to a spindle with a four-inch PVC pipe to hold and roll up the snow fence.

To roll up a length of fence, just slide the end of the fence into a slit in the PVC pipe and activate the pump.

The quick roller definitely saves time. Ankeny now spends one day to roll up its 8,000 feet of fence.

It also rolls the fence into tight rolls, which makes handling and storage easier.

The city has also made an attachment for spools to roll up rope for temporary parking and wire from traffic signal updates.

(Reprinted with permission from Technology News, Iowa Technology Transfer Center, December 2001.)

Gravel Roads, Maintenance and Design Manual

Gravel and unsurfaced roads account for about 50 percent of the nation's roads and carry about 20 percent of the traffic, covering all political jurisdictions. Maintaining good serviceability of these roads is a continuing challenge to the agencies responsible for them.

Good gravel road maintenance depends on two basic principles:

1) proper use of a motor grader (or other grading devices); and
2) use of good surface gravel.

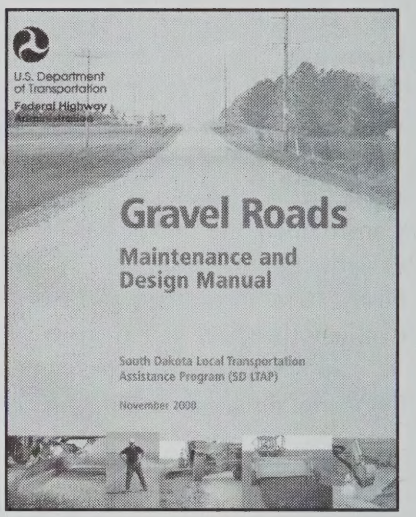
The use of the grader to properly shape the road is obvious to almost everyone, but the quality and volume of gravel needed is not as well understood. It seems that most gravel maintenance problems are blamed on the grader operator when the actual problem is often material-related. This is particularly true when dealing with the problem of corrugation or "wash boarding."

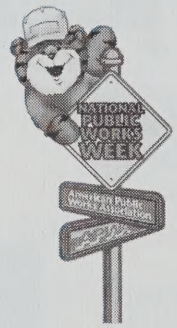
Another important matter to consider is the dramatic change in the vehicles and equipment using low-volume roads. Trucks and agricultural equipment are increasing in size and horse power. The trend is toward even larger machinery. There is a definite need to design and build stronger bases and pavements. Proper drainage is also important.

To address these issues, the Federal Highway Administration has distributed copies of the *Gravel Roads - Maintenance and Design Manual* to each LTAP (T^2) Center. This manual was authored by Ali A. Selim, Ph.D., P.E. Director of South Dakota, LTAP and Ken Skorseth, Field Service Manager of the South Dakota LTAP.

A copy of the manual is available upon written request sent or faxed to the Illinois T^2 Center. See the back page for mailing address or fax number.

In addition to this publication, the Center has other gravel road publications and videotapes that are available through the Center's Video/Publication Library. Publications and videotapes are listed in the Center's catalog which may also be found on the department's website at http://www.dot.state.il.us/library.html.





National Public Works Week

May 19-25, 2002

National Public Works Week was created in order to call attention to the millions of workers that bring civilization to the world. Infrastructure specialists whose jobs are often "behind the scenes" but without whom our cities would come to a screeching halt.

This year's National Public Works Week theme is **"Committed to Our Communities,"** so gear up for the most exciting National Public Works Week ever.

For more information or a "How to Guide", e-mail your request to Jon Dilley at APWA Headquarters: jdilley@apwa.net or call 816/472-6100 ext. 3507, or point your browser to www.apwa.net/npww.

National Work Zone Memorial

(continued from page 1)

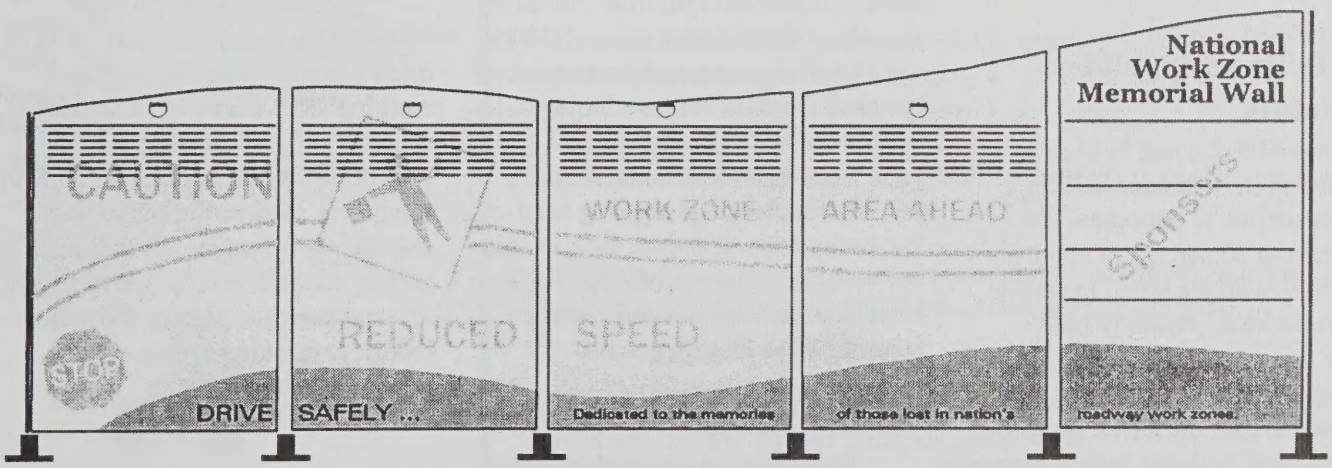
an inscription on a separate sponsorship panel of the wall. Financial contributions to the National Work Zone Memorial offer participants national recognition for their support at four levels (Platinum $1,000, Gold $500, Silver $250 and Bronze $100) on the sponsorship panel.

The exhibition will also include an educational kiosk to tell the story of America's roadway workers using memorabilia or photographs contributed by employers and family members of those named on the wall. After the exhibition is unveiled in Washington, D.C., it will be made available to communities nationwide to use outdoors whenever possible – rain or shine – to reflect the conditions under which roadway workers perform their vital duties. Visitors to the exhibition may also receive a locally customizable handout with tributes, FAQ's, and information for traveling safely in work zones.

In the interim, as the memorial is constructed, ATSSA seeks supporters and friends to begin submitting names for inclusion on the memorial. To include a name, simply visit www.atssa.com and click on the National Work Zone Memorial link. There, you will find the necessary form for submissions. Names will be added on a continuous basis.

Work Zone Fatality Statistics

Roadway Function Class	Person/ Type						
	Driver	Passenger	Pedestrian	Pedalcyclist	Other Nonmotorist	Unknown	**Total**
Principle Arterial							
Interstate	157	80	38	0	5	0	**280**
Freeway or Expressway	30	11	13	0	0	0	**54**
Other	181	70	49	4	3	0	**307**
Minor Arterial	104	35	21	4	0	0	**164**
Collector	89	33	17	2	0	0	**141**
Local Road or Street	57	23	13	1	1	0	**95**
Unknown	34	12	6	0	0	0	**52**
Total	**652**	**264**	**157**	**11**	**9**	**0**	**1,093**



"Put the Brakes on Fatalities"

The Federal Highway Administration is working with state departments of transportation and local highway agencies to put in place cost-effective solutions to reduce crashes from all causes.

Research shows that the most significant category of crashes is the single-vehicle run-off-road crash, which accounts for 37 percent of all highway fatalities. Roadway improvements such as rumble strips, retroreflective signs and markings, skid-resistant pavements, and the removal of roadside hazards such as trees and poles could greatly reduce the number of run-off-road fatalities.

Other major categories include speed-related crashes, which account for 30 percent of all roadway-related fatalities; pedestrian and bicycle crashes, which represent 12 percent of fatalities; and intersection crashes, which represent 23 percent of fatalities.

For more information on roadway safety, visit the FHWA Safety website at http://safety.fhwa.dot.gov.

Seat Belts and Child Restraints

Undoubtedly, seat belts save lives, and protective restraints for children are just as important. From 40 percent to 50 percent of children ages 4 to 8, who are killed in crashes, are unrestrained. Properly used booster seats – which let older kids who are shorter than 55 inches (140 centimeters) gain the fullest protection from standard backseat belts designed for adults — substantially reduce the risk of injury in a crash.

Some people believe that if they choose not to wear a seat belt, they are only potentially harming themselves; however, we all pay when people don't buckle up. The cost of inpatient hospital care for an unbelted occupant of a vehicle involved in a crash averages $5,000 more than the cost of care for a belted occupant. The general public bears 85 percent of such costs.

Pedestrians

A pedestrian is injured in a traffic crash every six minutes, and one is killed every 107 minutes. Most pedestrian accidents occur in cities, at night, away from intersections. In nearly half of the vehicle crashes involving pedestrians, alcohol is a factor. Perhaps surprisingly, in 31 percent of those cases, it's the pedestrian who is legally drunk.

Bicyclists

In 1999, 750 bicyclists were killed in traffic-related crashes, and approximately 51,000 were injured. About 26 percent of the fatalities were children age 14 and younger, making this one of the most frequent causes of injury-related deaths for young children.

Bicycle helmets are about 85 percent effective in mitigating head and brain injuries, and so, the use of a helmet is the single most effective way to reduce head injuries and fatalities resulting from bicycle crashes.

Vehicle Safety

Technological improvements and structural changes including air bags, seat belts, and child restraints, make today's vehicles safer than ever. Proper vehicle maintenance also helps to save lives. However, to be effective, all of these safety elements require individuals to make proper use of them.

Information on vehicle safety ratings can be found on the National Highway Traffic Safety Administration website at www.nhsta.dot.gov.

Alcohol and Driving

Every 33 minutes, someone in this country dies in an alcohol-related crash. About two out of every five Americans will be involved in an alcohol-related crash at some time in their lives, and many will be innocent victims. Alcohol involvement is the single greatest factor in motor vehicle deaths and injuries.

Drowsy Driving

Each year, falling asleep while driving causes at least 100,000 automobile crashes, 40,000 injuries, and 1,550 fatalities.

The drowsy driver is most frequently a young man (age 16 to 29), often a bright, energetic, and hard-working teen, whose crashes tend to occur in early afternoon.

Sleep is the only real antidote to sleepiness. Scientific studies show that common stopgap actions, such as getting out a car briefly and engaging in some exercise, playing the radio loudly, or drinking coffee, are not effective remedies.

(Reprinted with permission from Public Roads, November/December 2001.)

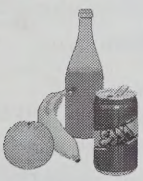
Roadside Litter

"It's amazing what you'll find in a ditch," mumbles the grader operator. "Leaves and branches are one thing. But when I have to haul out baby diapers, hip boots and broken beer bottles, it makes me wonder about people."

Most people do a pretty good job of properly disposing of refuse. Unfortunately, some people don't get the message and their trash ends up in the road side ditch.

Maybe they should know how long this stuff lasts. This shows the time required for some common litter items to decompose.

Item	Decomposition Time
Glass Bottle	Approx. 1 million years
Plastic 6-Pack Cover	450 years
Aluminum Can	200-500 years
Rubber-Boot Sole	50-80 years
Leather	Up to 50 years
Nylon Fabric	30-40 years
Plastic Film Container	20-30 years
Painted Wooden Stake	13 years
Plastic Bag	10-20 years
Plastic Coated Paper	5 years
Wool Clothing	1-5 years
Cigarette Butt	1-5 years
Cotton Rag	1-5 months
Orange Peel or Banana Peel	2-5 weeks



(Reprinted with permission from Vermont Local Roads News, September 1996. Source: California Waste Management Bulletin.)

Ten Commandments for Shop Mechanics

1. Thou shalt keep thy shop neat and clean with tools in place and oil spills cleaned up lest thou slip and fall, banging thy head or slipping thy disk.

2. Thou shalt wear eye protection when welding, chipping, sanding, or grinding; otherwise, thou may become a lifelong companion to a seeing eye dog.

3. Thou shalt block up vehicles being serviced, do not trust jacks and hoists because their failure could crush thee.

4. Thou shalt not use thy legs as a sawhorse for power tools lest thou become a one-legged worker.

5. Thou shalt lay thy butane lighter far aside when welding. It is equivalent to a stick of dynamite and could blow thee to thy eternal reward.

6. Thou shalt not use thy file as a pry, thy pliers as a wrench, or thy knife as a punch, lest thou skin thy knuckles or cut thy hand and take the name of thy Lord in vain.

7. Thou shalt discard thy broken and badly worn tools because they will lead to disaster and bloodshed.

8. Thou shalt inflate tires in a cage, lest the ring fly off and behead thee.

9. Thou shalt keep fire extinguishers in operating condition and never use gasoline as a cleaning agent, lest thee exit through the roof.

10. Thou shall match thy tool to the job and thou shalt watch out for fellow workers. Be thy brother's keeper in the shop.

(Reprinted with permission from Links & Nodes, Rhode Island Technology Transfer Center, Fall 2001.)

Coping With Complaints

You are part of the "frontline troops." You are possibly the only personal contact complainants will ever have with the government. When they have a problem and no one will fix it, they are apt to be hostile by the time they get to you. Your skill in handling their problem may confirm or change their perception of their local government.

When you are called into a firing line situation and are confronted by angry situation and are confronted by angry or hostile citizens, the following steps will help defuse the situation.

Defusing

1. Greet the complainants with a smile and a friendly handshake.
2. Tell them as quickly as possible that you want to work with them to solve the problem. This will move the conversation onto a constructive basis and away from government or individual attacks.
3. Ask them to move with you to a quiet location where you can talk uninterrupted.
4. Ask them to tell you about the problem.
5. Listen to them. By listening—not just hearing—you begin to put their problems into perspective and questions start to formulate in your mind.
6. Do not interrupt the complainants at this point. Mentally set a reasonable time limit and let them tell their whole story without interruption. Anything you say while they are venting may just provoke more anger.
7. Note your body language. Hands should be loose or folded, not crossed over chest.
8. Compensate for mental lag time. People talk at 150-200 words per minute; you think at 600-800 words per minute. Use the time constructively. Ask yourself:
   a. What is the main point?
   b. What is the evidence?
   c. Is this reasonable to me?
   d. Are the complainants giving sources of information?
   e. Are there alternatives?
   f. Is this consistent with my past experience?
9. Be aware of filtering and distortion.
   a. Don't discount bits of information.
   b. Don't magnify beyond their intent. This is most likely to happen when they are threatening or hostile.
   c. Don't attach additional information or meaning to what they say.
10. Watch for signs that the complainant is winding down.

Taking Charge

1. Express your concern and your understanding of the complainants' frustration. Tell them you are sorry they have had this problem. State that you will work with them toward finding a solution.
2. As they calm, begin to ask questions. This will force them to organize their thoughts, put you in control, and give you information you need to address the problem.
3. Be sure you ask the six questions every good investigator asks–who, what, when, where, why, how.
4. Use active listening skills and give them time to fully respond to each of your questions. Paraphrase their statements, asking, "Is that right?" or "Is that correct?" and give them opportunity to respond. When you and the complainants have agreed on a definition of the problem, ask what they seek in terms of a solution. Paraphrase again to be sure you understand.

Do not make any commitment or promise at this point. Do not make any statement about fault. Do not agree with them about the cause of the problem or about any responsibility for its remedy.

You have reached an agreement on their perception of the problem and what they believe the solution should be.

Closing Discussion

1. Tell the complainants you need to research the problem with your boss or staff.
2. Tell them a time when they will hear back from you. Then call back even if you have not yet reached a decision. Failure to call back typically results in their seeking help further up the chain of command, and then you will be complained about along with the original problem.

Give yourself a pat on the back for a job professionally and well done. Recognize that you cannot "win them all," and that you are not expected to win them all.

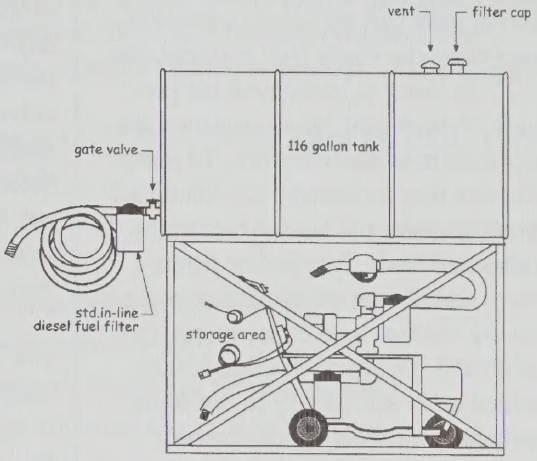
Tack Distributor Waste Diesel Recycling System – Recycling by Recycling

Below is a fascinating and useful description of what happens when workers are allowed (and encouraged) to think for themselves: in this case they invented a way to save their municipal employer thousands of dollars, on a continuing annual basis.

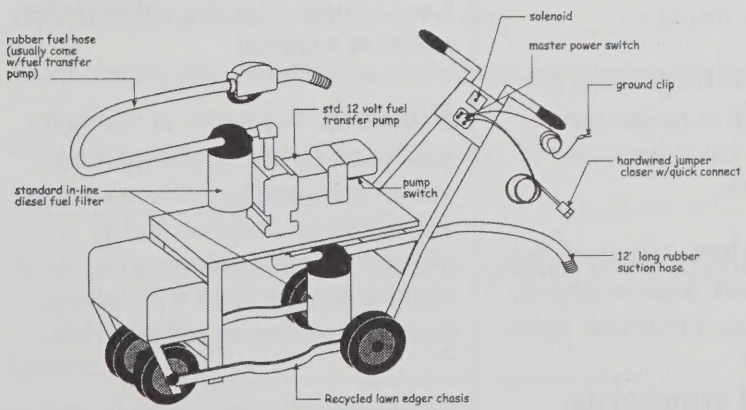
For years the city of Renton, Washington has cleaned their CSS1 Tack Distributor using fresh diesel fuel in order to keep the system pump and hose from plugging up. The flushing processes resulted in 800 to 1000 gallons of tack/diesel waste that had to be disposed of as hazardous material at a disposal cost of $7,000 to $10,000 per year.

Patrick Zellner, City of Renton Lead Maintenance Worker III, noticed that as the dirty tack/diesel mix sat in storage, the tack material settled and fairly clean diesel floated to the top. Patrick got together with his co-worker, James Pryor, Maintenance Worker III, and they came up with an amazing piece of equipment and a process that saves money, fuel resources and the environment by filtering and recycling the used, dirty diesel.

What Patrick and James have developed is a process that allows the asphalt and diesel to separate. This is done in three phases along with a modified initial cleaning step for the tack distributor.



The first step in cleaning the distributor equipment has been modified. Now the operators push the residual tack remaining in the hose into the tack tank using cleaning diesel, stopping just short of the cleaning diesel entering into the tack tank itself. This removes most of the tack that would have needed to be removed and disposed of during the recycling process itself, without polluting the tack with diesel. This has greatly reduced the amount of waste tack needing to be separated during the recycling process.



Once the distributor is cleaned, the separation process begins. In the first phase, the tack/diesel mix resulting from the distributor flushing process is allowed to sit for a period of time to let the asphalt tack settle to the bottom of the 55-gallon drums it is stored in. In the next phase, after the initial settling occurs, they pump the partially cleaned fuel from the top of the 55-gallon drums through a series of two filters and store the filtered diesel in a tank for future use. In the last phase, when the filtered diesel is needed for cleaning the tack distributor again, the fuel is drawn from the tank and passed through a final filter. After cleaning the tack distributor with the recycled diesel, they start the process all over again.

Pat says the process reduces 55 gallons of tack/diesel mix to about 15 gallons of tack waste and 40 gallons of

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Tack Distributor Waste Diesel Recycling System

(continued from page 9)

recycled diesel fuel. He says the fuel can be recycled almost indefinitely. Pat is currently investigating methods of recycling the waste tack material, too.

In order to implement the process, Patrick and James invented the equipment to make it work. To pump the mix they mounted a 12-volt diesel pump onto an old lawn edger frame (also recycled). Two in-line filters were added, one on the inflow and one on the outflow side of the pump, (see diagram). To power the pump, they added a 12-volt battery to the frame with hard mounted quick-connect jumper cables to be attached to a battery charger. On the upstream side they connected a 12-foot suction hose and on the downstream side a hose with a standard fuel nozzle.

The storage tank was made of a (you guessed it) recycled 116-gallon home fuel tank found dumped along the shoulder of a road. It was cleaned, sand blasted, painted and mounted on a stand. A third filter was attached between the gate valve and the hose at the outflow of the storage tank. The tank is well marked so that the recycled fuel is not misused. The pump dolly is stored under the storage tank.

Patrick notes, "The system works great! I am working on reusing some of the tack and have had some success filtering and settling it out. That's another invention to come."

(Reprinted with permission from the Washington State Technology Transfer Bulletin, Spring 2001.)

Tight Money Doesn't Have to Mean Poor Roads

You and I know the easiest way to spend less in these budget-cutting days is just to repair the potholes, plow the snow on time, fix the driveway culverts, and let the rest take care of itself. The roads will sit there quietly, deteriorating, and nobody will yelp - yet. But in road maintenance, short-term savings will surely produce long-term costs. So is there a better way?

Below are some ideas on how you can make the most of bare bone budgets:

Develop a long-term maintenance plan. Instead of responding to the squeaky wheel, offer the alternative of a scheme thought out in advance.

Spread the cost over time by doing the work in steps. This will involve reorganizing your activities to reduce waste.

Divert trucks off weaker or deteriorating streets or roads before damage becomes major.

Attend to drainage. This is prevention as well as maintenance because water is the major cause of problems for roads.

Control erosion. Use seed, hay, etc., to protect work done on ditches, slopes and culverts. Prevention again.

Update road standards. Better built roads save maintenance money. Give community managers a sound argument for long-term expenditures.

Pave only after preparing the road. Repair its culverts, shoulders, ditches, etc. Shape up the gravel. Then, only, then, overlay.

Check bridges. Clean the deck and around the beams at least once a year. Check abutments and piers for erosion. Repair deck and guardrail and upgrade to current standards where possible.

Maintain road signs. Replace deteriorating damaged or vandalized signs.

Mow and cut. This improves drainage and increases safety.

Keep records. Keep records. Keep records. This can influence the results of a lawsuit.

Educate. The public or managers won't necessarily understand what you're doing and how it saves money. Explain it over and over, and in advance of budget hearings. In addition, keep in touch with current practices, equipment and materials.

(Reprinted from Pennsylvania Local Roads Program, Moving Forward, July 1993.)

We Need Your Help . . .
It's Time to Plan the 2002-2003 Training Program

The Bureau of Local Roads and Streets' Technology Transfer Center is soliciting **local agency** interest in classes for the October 2002 to April 2003 training program. Please look over the list and indicate those classes of interest to you or your personnel by filling in the blank with an approximate number of attendees your agency would send if the classes were available in your area. This solicitation will be used by the Center in scheduling the 2002-2003 training program. Every effort will be made to locate specific classes in areas showing the most interest. Classes lacking in interest will be dropped from this year's schedule.

Please complete this class interest survey and mail or fax it to the Center at (217) 785-7296 by **April 19, 2002**. If you have questions regarding class content, please call the Center at (217) 785-2350.

	Approximate Number		Approximate Number
Bridge Construction Inspection (2 days)	_____	Pavement Construction Inspection (3 days)	_____
Bridge Inventory Documentation (1 day)	_____	Pavement Maintenance (1 day)	_____
Bridge Piling (1 day)	_____	Rehab of Streets & Highways Seminar (1 day)	_____
Bridge Repair (1 day)	_____	Small Drainage Structure Const. Insp. (2 days)	_____
Bridge Safety Inspection (1 day)	_____	Snow & Ice Control (½ day)	_____
Confined Space Awareness (1/2 day)	_____	Street Sweeping (1 day)	_____
*Culvert Hydraulics (1/2 day)	_____	Surveying I-Beginning (3 days)	_____
Documentation (2 days)	_____	Surveying II-Intermediate (4 days)	_____
Erosion Control (1 day)	_____	Surveying III-Construction Staking (3 days)	_____
Flagger Training (1/2 day)	_____	Surveying IV-Map GPS & St. Pl. Coord. (2 days)	_____
Hazardous Material - First Responder (1 day)	_____	Team Building (1 day)	_____
*HEC-RAS (2 days)	_____	Traffic Signal Maintenance (1 day)	_____
Highway Jurisdiction/Transfers (1 day)	_____	Trenching & Shoring Safety (½ day)	_____
Highway Signing (1 day)	_____	Work Zone Safety (1 day)	_____
Highway Engineering Principles (1 day)	_____	Understanding Specifications (1 day)	_____
MFT Accounting and Auditing (1 day)	_____	Urban Storm Mitigation/Tree Damage (1 day)	_____
OSHA 10-Hour General Industry (1½ days)	_____		

Other classes you would like to see offered and number of potential attendees from your agency.

_____ _____ _____ _____

_____ _____ _____ _____

*Culvert Hydraulics and HEC-RAS are computer programs offered only in Springfield.

Contact Person _____ Agency _____

Phone Number _____ Fax Number _____

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Illinois Interchange

The Technology Transfer (T^2) Program is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation. Its purpose is to interchange the latest state-of-the-art technology in the areas of roads and bridges by translating the technology into terms understood by local and state highway or transportation personnel.

The Illinois Interchange is published quarterly by the Illinois Technology Transfer Center at the Illinois Department of Transportation. Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect views of the Illinois Department of Transportation, or the Federal Highway Administration. Any product mentioned in the Illinois Interchange is for informational purposes only and should not be considered a product endorsement. Subscriptions are free and are available by writing to:

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Printed by the authority of the State of Illinois - 2/02 - 4,100

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ILLINOIS INTERCHANGE

TECHNOLOGY TRANSFER TODAY for

T2

BUREAU OF LOCAL ROADS AND STREETS

LTAP QUARTERLY

Vol. 10 No. 2

Summer 2002

Design Selected for New Mississippi River Bridge

Moving traffic backups is a primary project goal.

The Illinois and Missouri departments of transportation recently announced the selection of the design of the new bridge that will span the Mississippi River between East St. Louis and downtown St. Louis.

"The selection of the bridge designed by the team headed by Modjeski & Masters is a signature structure that will further define the region's skyline for generations to come," Illinois Transportation Secretary Kirk Brown says.

The bridge is a cable-stayed design with three planes of cables and two single, leaning pylon towers reaching 435 feet above the roadway. The bridge will be approximately 3,150-feet long and 222-feet wide, making it the world's widest cable-stayed structure. It will include eight lanes of traffic with shoulders wide enough that they provide the potential for four additional lanes in the future. The main span across the navigational channel will be 2,000-feet long, the longest clear span across the Mississippi. The bridge will also be the longest cable-stayed span in the Western Hemisphere, and the fifth longest cable-stayed span in the world.

Department of Transportation studies indicate that without the new bridge, rush-hour congestion will double by the year 2020 and will last for three hours. The average delay will increase from 10 minutes per vehicle today to 55 minutes in 2020.

The bridge is one part of a larger transportation improvement

(Continued on page 5)

INSIDE:

Please pass this on to other interested parties in your office.

Illinois Department of Transportation

From the Desk of...

We welcome to the T2 Center staff Roy Williamson. Roy replaces Jim Cummins who has accepted the Work Zone Manager position in the Bureau of Operations. Roy will be taking over the responsibilities of the Training Development Technician. His principal accountability in this position will be the development and coordination of the T2 Training Program, technical workshops and conferences that provide local agency personnel with the skills and knowledge of highway/bridge construction and maintenance related activities. Roy has been employed by the Illinois Department of Transportation for the past 18 years in the Office of Finance and Administration. We are looking forward to having Roy on staff and congratulate him on his new position.

Roy Williamson
Training Development Technician

The month of June and high school graduation means that we here at the T2 Center will be saying good bye and good luck to our High School Office Occupation Trainee Student Kristy Gorda. We want to thank Kristy for all her hard work and dedication that helped make the Center a success this past year. We congratulate and wish her well in her future endeavors. Kristy will be staying with the Bureau of Local Roads and Streets for the summer as a summer tech in another unit.

We want to welcome our new Office Occupation Trainee, David Nossem, who will be a senior at Lanphier High School next school year. David will be assuming Kristy's responsibilities for the Video/Publication Library, Math Refresher Program and maintenance of the Mailing List. We congratulate David on his new job and welcome him to the T2 Center. We are looking forward to having David on staff.

We want to thank those of you who took the time to reply to the training survey in the Spring 2002 Illinois Interchange Newsletter. Response to that survey was not that great. We thought that since we ask all local agencies to respond we would try a different approach and mail all local agencies, on our mailing list, another opportunity to reply to the survey. We thank each of you who responded to the mailed survey. This information is very important. Results of the two surveys will determine the classes and locations for the next (2002-2003) T2 Training Program. PLEASE NOTE THAT RESPONSE TO THE SURVEY DOES NOT ENROLL ANY STUDENTS IN A CLASS. You must complete the enrollment form that will be printed in the Special Edition of the Illinois Interchange Training Newsletter for 2002-2003.

Our goal is to have the final training schedule completed and printed in the Special Edition of the Illinois Interchange Newsletter no later than the end of August. Be sure to also look for the training schedule and other services available through the T2 Center on the IDOT web site @ http://www.dot.state.il.us/blr/t2center.html. Give us a try, take advantage of the services we offer.

Willy Scheller
Technology Transfer Program Manager

Mark Your Calendar!

Snowfighter Workshop VIII

October 2-3, 2002
Holiday Inn
Normal, Illinois

This workshop is co-sponsored by IDOT's Bureau of Operations and the Bureau of Local Roads and Streets' Technology Transfer Center.

Repairing Potholes

This article appeared in the Summer 2000 edition of the Illinois Interchange, but because of the season, we thought it was worth repeating.

The decision to patch potholes is influenced by many factors:

- The level of traffic
- The time until scheduled rehabilitation or overlay
- The availability of personnel, equipment, and materials
- The tolerance of the traveling public

In most cases, the public likes all potholes to be promptly repaired, and forms a negative opinion of the highway agency when this fails to happen.

Potholes are generally caused by moisture, freeze-thaw action, traffic, poor underlying support, or some combination of these factors. Pothole repair is necessary in those situations where potholes compromise safety and pavement rideability.

For any pothole repair operation, two main elements of quality patching are repair procedures and material selection.

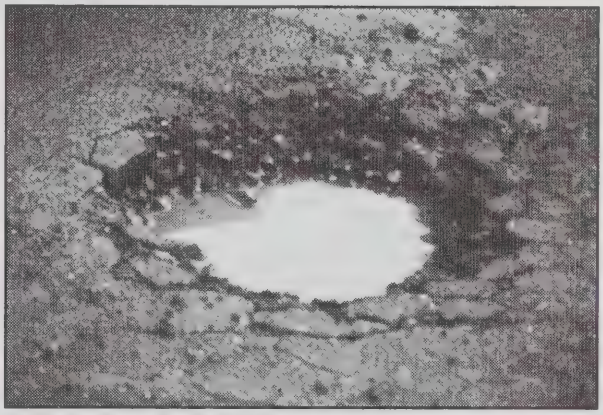
Selecting a procedure

Spring/summer patching can be done by spray injection, throw-and-roll or semi-permanent procedures. Cost-effectiveness and the availability of equipment and workers should be the most important criteria. Because the semi-permanent procedure requires more equipment and workers, that procedure may be impractical.

The throw-and-roll procedure should be considered a viable alternative for placing spring/summer patches. Results from a recent study indicate that patches placed with this method can provide satisfactory results when high-quality materials are used.

Materials

The choice of materials for patching should be based on their cost-effectiveness. Even when cost-effectiveness indicates the superiority of one material over another, the experience of the local maintenance crew should be considered.



Also, any material acceptable for winter patching is generally acceptable for spring/summer patching.

However, the effects of having been stockpiled over the winter and the differences in workability over wide temperature ranges should be considered. Materials that are workable at very low temperatures tend to be very sticky and hard to use at higher temperatures.

High-quality, crushed aggregate, again with few fines, and an emulsified asphalt should be used for spring/summer patching. Anti-stripping additives are still advised. The mixtures can set more slowly than winter materials, since higher temperatures allow more rapid evaporation.

Repair Procedures

Many maintenance agencies use the throw-and-go method for repairing potholes. While not considered the best way to patch potholes, it is the most commonly used method because of its high rate of production. The procedure is more accurately termed "*throw-and-roll*," and should be considered a superior alternative to the traditional throw-and-go.

The throw-and-roll method consists of the following steps:

- Place the material into a pothole (which may or may not be filled with water or debris)
- Compact the patch using truck tires
- Verify that the compacted patch has some crown (between 1/8 in and 1/4 in).
- Move on to the next pothole
- Open the repair to traffic as soon as maintenance workers and equipment are clear.

One difference between this method and the traditional throw-and-go method is that some effort is made to compact the patches. Compaction provides a tighter patch for traffic.

(continued on page 11)

SAFETY CORNER

Operating A Chain Saw

PROBLEM: A chain saw is a cutting tool designed to cut wood. Like any cutting tool, it works best when properly maintained; when the chain is kept sharp, properly tensioned and lubricated. A dull chain means added work for the operator and the engine, besides putting a strain on all working parts of the saw.

WHAT WE CAN ALL DO:

Don't allow dirt, fuel, or sawdust to build up on the engine or the outside of the saw. Keep all screws and fasteners tight. Never operate a chain saw that's damaged, improperly adjusted, or is not completely and securely assembled. Be sure the saw's chain stops moving when the throttle trigger is released and the engine idles. Keep the handles dry, clean, and free of oil or fuel mixture.

Wear close fitting and protective clothing including goggles, gloves, and hearing protection. Start your saw without help. Hold it firmly on the ground or on a stump. Don't start it on your leg or knee! Always shut off the engine before refueling. Refuel as required to avoid running out of fuel in the middle of the cut. Open the fuel cap slowly to release any pressure which may have formed in the fuel tank. Wipe spilled fuel from the saw or be certain it has dried thoroughly before restarting. Move away from the fueling spot to avoid fire hazards.

Proper footing is important. Don't cut in awkward positions which are off-balance. Hold the saw firmly with both hands, with your thumbs and fingers encircling the chain saw handles. When cutting a limb under tension, be alert for anything which might snap back. Never attempt to cut brush or small saplings because they will tend to catch the saw and whip it back toward you.

Maintenance and proper storage of chain saws is important to keep them in good operating condition.

Guard against kickback. This is one of the main sources of injuries when using a chain saw. Kickback happens when the chain on top of the guide bar becomes pinched in a saw cut. Kickback can also happen if the chain comes into contact with another branch or log. A dull or loose chain or running the engine slowly may also result in kickback. Some examples of anti-kickback devices on saws you may use include an automatic chain brake, low kickback chain, or a kickback bar.

Always shut off the engine when moving to another location. Carry the saw with the guide bar and saw pointed to the rear and the muffler away from your body. Maintenance and proper storage of chain saws is important to keep them in good operating condition. Keep the chain, bar, and sprocket clean – replace worn sprockets or chains. Keep the chain sharp. You can spot a dull chain when easy-to-cut wood becomes hard to cut and burn marks appear on the wood. Keep the chain at proper tension. Tighten all nuts, bolts, and screws except the carburetor adjustment screw after each and every use. Keep the spark plug and wire connections tight and clean. Store chain saws in a dry location, away from other tools. Let's all work together to prevent chain saw injuries. Take the time to care about safety!

This article reprinted from the Department's "Tailgate Talks," publication which is available through the Center's Video/Publication Library. Also available through our Library are videotapes on chain saw safety, maintenance and use along with brush and tree removal. The Video/Publication Library Catalog can be found on the IDOT Web Site at http://www.dot.state.il.us/blr/library.html.

Design Selected for New Mississippi River Bridge

(continued from page 1)

project that will reduce congestion and improve safety in St. Louis and Southwestern Illinois. HNTB will serve as program manager for the total project, which is estimated at more than $1 billion, including $370 million for the new bridge.

Work in Illinois will include relocating I-70 to the north to connect with the new bridge; constructing a connection between I-64 and the new I-70; upgrading the tri-level interchange where I-55, I-70, and I-64 meet; and upgrading Illinois 3. Missouri will be responsible for construction of a new interchange just north of downtown to connect the new bridge to I-70 and local streets, and upgrading connections from the Poplar Street Bridge to local streets.

Illinois' share of the cost will be about 65% of the total because of the extensive highway relocations and improvements planned on their side of the river. Governor Ryan's Illinois FIRST program will provide approximately $94 million to relocate portions of Illinois 3 and to reconstruct the existing I-55/64/70 interchange.

The timing of the construction of the new bridge depends on the availability of funds. IDOT and MoDOT are working with public officials and community leaders to identify funds through the 2003 federal transportation bill. If funding is received, construction could begin in 2004 with completion anticipated by 2010. More information is available on the project web site at www.newriverbridge.org.

(Reprinted with permission from Better Roads, February 2002.)

2001 County Engineer of the Year Award Winners

The Illinois Association of County Engineers President Marty Buehler presented their association's 2001 County Engineer of the Year Awards at the Transportation and Highway Engineering (THE) Conference held at the University of Illinois in Champaign.

The Technology Transfer Center on behalf of the Department and the Bureau of Local Roads and Streets, congratulates the following recipients and thanks them for their continued support and dedication to providing a safe system of highways for the traveling public.

President Marty Buehler presents Sheldon C. Latz with the Zone 1 Award for the enhancement of highway engineering in Will County.

President Marty Buehler presents Richard D. Boles with the Zone 2 Award for the enhancement of highway engineering in Edgar County.

President Marty Buehler presents David A. Dietzel with the Zone 3 Award for the enhancement of highway engineering in Madison County.

Vegetation Management: Safe Use Tips for Herbicides

We've been using herbicides to control unwanted vegetation on rights-of-way for nearly 50 years now, so you'd think most people in vegetation management would know how to use them safely. But just like any other area where safety is a major concern (driving comes to mind), people are people and they forget the rules, or they never learn them in the first place.

We asked for good safe use tips from professionals in the herbicide business, and the people at Dow AgroSciences supplied us with plenty. In fact, they urge that their information be used for training courses, or as a refresher in important safety tips for anyone in the industry.

Toxicity

Literally, toxicity is a material's ability to cause injury. Everything can be toxic, even water. What differentiates a substance from being harmful are *exposure* and *dose*. Exposure is the amount of herbicide reaching the skin (on you); dose is the amount penetrating the body (in you).

Your hands and forearms experience the greatest exposure when handling herbicides. If you wash your hands after applying herbicides and before handling food, drink, or smoking materials, the dose you receive can be very small.

Herbicides won't penetrate your skin easily, so if you wash your hands after handling herbicides and shower at the end of each work day, the herbicides you may have contacted can be removed.

Clothing

The right clothing will take you a long way toward protecting yourself against possible exposure. Check the label for exact clothing requirements for the herbicide you're using. Put clean clothes on every morning and change clothes after you've cleaned the application equipment and returned it to storage.

Here are some general guidelines on what to wear:

- **Arms and legs.** Wear a long-sleeved shirt and long pants, or coveralls. These will protect your arms and legs if you're accidentally exposed during mixing or applying herbicides. Most clothes are effective in protecting your skin by absorbing much of the herbicide you may come in contact with.
- **Hands.** Wear chemical-resistant gloves when prolonged or frequently repeated contact may occur. Gloves are particularly important when mixing concentrates, loading spraying equipment, rinsing and handling drums, and during hand applications.

  Avoid wearing leather, cloth, or paper gloves, These materials easily absorb liquids. Leave your gloves on even when you're adjusting nozzles. If you take them off, you'll defeat their purpose. It's smart to keep a supply of gloves with you at all times and replace old gloves frequently, even if they look okay to you.

  It also helps to tuck your gloves inside your shirt sleeves to help avoid seepage into your gloves. After you've finished work, wash your gloves with soap and water before you take them off.
- **Feet.** Wear rubber or vinyl boots with socks. Don't wear tennis shoes or sandals. If you wear leather shoes or boots, water-proof them with a good sealant. Leather absorbs the herbicide and it's very difficult to wash out.
- **Eyes.** Any time there's potential for accidentally getting the herbicide concentrate in your eyes, protect them with goggles or a face shield. When mixing herbicides, always protect your eyes.
- **Head.** Wear a hat. By protecting your hair and scalp, you further reduce your chance for exposure.

Read the Label

A herbicide label contains information that describes how to use the product safely and effectively. You'll also find guidelines on how to dress, how to mix and handle the herbicide, and first aid. This information appears on all product labels.

It's vital that you become familiar with all the information detailed on every herbicide's labels before you mix or apply it.

Mixing

During the mixing process, the likelihood increases for possible exposure since you're working with concentrates. When you open herbicide containers, keep them below eye level to protect yourself from splashes.

And try to stand with your head well above the spray tank's fill hole when pouring herbicides into a mixing tank. To avoid herbicide blowing away from the batch container while mixing, check the wind direction before pouring.

Replace pour caps and close all containers securely when you're finished pouring. Also, be sure you have the proper mixing equipment on hand to avoid the temptation of using your hands to stir herbicides or retrieve something you've dropped in the tank.

Keep the fill hose above the water level in the spray tank at all times to prevent the herbicide from back-siphoning into your water supply. You can find inexpensive anti-flow devices that prevent this.

When cleaning or calibrating nozzles, wear gloves and eye protection. Above all, don't use your mouth to clear a clogged nozzle.

You need to triple-rinse all containers before disposal. Take care to avoid splashing the rinse solution while shaking the containers. Then carefully pour the rinse water into the batch tank. Try to keep wrestling with the barrels to a minimum to reduce the chance for splashes and spills.

Don't rush through the mixing process since spills often happen when you're in a hurry.

Spraying

Always walk in and spray out. This way you'll work away from treated areas instead of spraying ahead and marching through the mist and wet vegetation. Direct the spray solution away from people, including yourself, and minimize overhead spraying.

Check that all connections are tight and hoses have no cracks where herbicides could escape before reaching the nozzle. Overall, be sure your equipment functions properly before each use and make any necessary repairs. Replace the equipment you can't repair.

Overpumping during backpack applications has been known to blow the seal on the pump and allow herbicides to leak down the back of the operator's clothing. If this happens, change your clothes immediately and make sure they're clean before wearing them again. Then repair or replace the leaking equipment before further use.

Washing and Hygiene

After applying herbicides, wash your hands and face before you eat, drink, smoke, or chew tobacco. You need to wash even though you've been wearing gloves. It's a good idea to keep your eating, drinking, and smoking activities away from the mixing and application areas.

Treat your work clothes as you would any heavily soiled clothing by washing them separately.

Also, keep them away from other family members' clothes. For best results, be sure your clothes are presoaked before washing them in a tub or washer. Your work clothes should be washed in hot water, using the longest wash cycle, and using a heavy-duty detergent. For oil-based formulations, use a heavy-duty liquid detergent.

Head for the shower and use lots of hot, soapy water. Shampoo your hair well and clean under your fingernails. That sounds like a lecture, but you'll remove herbicide residues and minimize your dose.

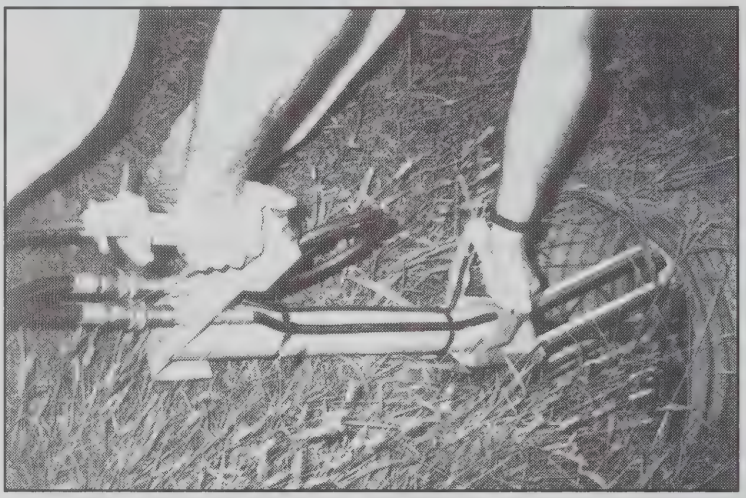
The T^2 Center has available through the Video/Publication Library a videotape (#26) *Handling Pesticides Safely and Why Use Herbicides*. A more detailed description of the videotape can be found in the Video/Publication Library catalog and on the IDOT Web Site at http://www.dot.state.il.us/blr/library.html.

(Reprinted with permission from Better Roads, July 1999.)

What's New With You?

New Tool Reshapes Crushed Culvert Ends

This article appeared in the Fall 2000 edition of the Illinois Interchange, but because of the season, we thought it was worth repeating.



The reshaping tool expanded to reshape the culvert.

It's time to start ditch maintenance on local roads. A common problem that restricts drainage in rural areas is the crushed ends of metal culvert pipes. Replacing the whole pipe just to eliminate the crushed end is expensive and a waste of taxpayer's money. Yet anyone who has tried to fix them using a standard jack knows how ineffective that method is.

Douglas Wright at The Center for Local Government Technology in Oklahoma has built a hydraulic reshaper as a solution. The reshaper was designed to be built from common off-the-shelf components with a minimum amount of machining and welding involved. Several have been built by people working in maintenance shops for around $270.

The reshaper is operated from a hydraulic unit mounted in the truck or on a tractor.

The collapsed jack is placed in the end of the crushed pipe. As the cylinder is retracted, the jack expands and the pipe is reshaped. According to Wright, this process takes about as long as it takes to read this article.

Mr. Wright notes that an effort has been made to make this device as safe as possible for the operator. The "safety" switch insures both hands will be on the device while it is operated and the relative low pump delivery will make the expansion rate slow under load. Extreme caution should still be used! As with any hand held, powered tool, it is potentially dangerous.

A materials list and complete set of plans are available from the Illinois T^2 Center. Call (217) 785-5048 to request your set.

(Adapted from Oklahoma LTAP News, April 1997.)

Basic Training for New Hires

Statistics reveal that workers are the most susceptible to injuries during their first month on the job. This is an excellent reason to give new hires basic safety training as soon as they come under your supervision.

Welcome New Employees

Before assigning new employees tasks, take the time to welcome them into your organization. Walk them around the facility and introduce them to their co-workers. Encourage veteran employees to help newer workers feel at ease. Your efforts will make both new and veteran workers feel more comfortable.

Provide Guidance

As a supervisor, you'll witness new employees trying hard to do things right in the beginning. You want them to feel at ease enough to ask questions and not be so anxious about their performance that they make mistakes or have accidents. New workers are the most likely to be injured during the first month of employment. Your new hires need to know how serious safety training is right from the start.

In your first meeting with your new employees, reinforce the need for caution and appropriate protective equipment for each task. Emphasize that all unsafe conditions, accidents, and "near misses" must be reported. Show them what equipment they can and cannot operate without your authorization.

Employee Orientation

Your company's human resource or personnel department can orient new employees in company-wide practices and employee benefits. Perhaps your safety director can instruct new employees in overall safety and accident prevention programs.

Since you're the supervisor, you'll probably have to cover the following issues:

- The proper safety practices to use and hazards to be aware of within your department.
- What to do if there is an accident or injury.
- How to report emergencies.
- How to care for and use personal protective equipment.
- How to use tools, machinery, or hazardous processes.
- Housekeeping and personal cleanup rules.
- The location of emergency equipment, first-aid supplies, and designated smoking areas.

Training Benefits

By conducting new employee safety training, new employees can:

- See how concerned your company is about accident prevention;
- See how other workers perform safely throughout the facility; and
- Be encouraged to suggest ways to improve their safety.

Follow-Up Meetings

Schedule a follow-up meeting a few days after your initial orientation. You can see if new workers understand and are using safe work practices. Answer any questions they may have. Use a checklist to review each of the specific safety practices covered in your meeting. Remember, supervisors also benefit by initiating thorough orientation and safety programs – such programs can help keep employee morale high and reduce accident and employee turnover rates.

(Reprinted with permission from the Nebraska Technology Transfer Center, Spring 1997.)

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Urban Planning: Web Site Offers Step-by-Step Planning Help

You have just been elected to the village council, and your previous experience has not prepared you to make decisions about land-use planning, economic development or infrastructure issues. That is the premise behind a new web site developed by faculty and researchers at Cornell University, Ithaca, N.Y., and Pennsylvania State University, State College, PA.

Called "Community and Economic Development Toolbox," the site provides a step-by-step guide for assessing community needs, identifying goals and making plans to achieve those goals. Although the site was designed primarily for rural communities in New York and Pennsylvania, its developers note that it can assist leaders of any community—especially those of rural communities—with planning and development.

In many communities, decision-making is constrained by a limited understanding of the problems," says Timothy Cullenen, extension support specialist for Cornell University's Community and Rural Development program. "This is not true in every town, but, in many rural places, the breadth of problems eclipses the training, knowledge or experience of most local officials."

For that group, the web site offers a fast education in planning and development basics. The online tools cover:

- planning from assessing and charting local needs to writing grant proposals;
- benchmarking, including an introduction to GIS;
- development, including Smart Growth concepts; and
- economic development, including tools for assessing the local retail market and ways of using employment data to better understand the local economy.

This year, site developers are adding sections about government policies (e.g., shared services, regionalism, zoning) and agricultural development, and they are enhancing existing modules. For example, under Benchmarking, the site soon will include information about conducting inventory assessments and community surveys. Under Development, designers will add information about planning for Main Street and downtown revitalization, telecommunications upgrades, infrastructure development, recreation and open spaces, and brownfields redevelopment.

For a closer look at "Community and Economic Development Toolbox," visit www.cdtoolbox.org. Access to the site is free, and there is no fee for using the tools.

(Reprinted from the American City & County, March 2002.)

New Look for the IDOT Web Site

By Mark Blankenship, Program Data Manager, IDOT Bureau of Local Roads and Streets

If you have visited the IDOT Web Site lately, you probably have noticed some changes. Not only has our web site changed in appearance, but in some instances, the location of information has changed. These changes are due to suggestions taken from an online survey of IDOT web site users.

Main sections are grouped according to function rather than IDOT organization, making it more accessible to those not familiar with the IDOT organizational structure. Information pertaining to Local Agencies can be found under Doing Business or Public Partners. If you are still having trouble finding information, you can access the Site Map, which gives you the layout of the web site or you can enter criteria in the Search Engine. Both are located at the top right of each page.

Any book marks you may have had to specific locations in our old web site, are still operational in the new site.

We apologize for any inconvenience this change may have caused you, but are hopeful that you will find the new web site more functional and suited to your needs.

Repairing Potholes

(continued from page 3)

The extra time to compact the patches (generally 1 to 2 additional minutes per patch) will not significantly affect productivity. This is especially true if the areas to be patched are separated by long distances and most of the time is spent traveling between potholes.

Patching Costs

The three main costs for pothole patching for most agencies are: material, labor, and equipment. The following sections discuss the costs of these aspects of the patching operation.

1. Materials. The cost most commonly associated with pothole patching is the cost of purchasing material. This is usually one of the least significant contributors to the overall cost of a patching operation. However, the material used for patching does impact the cost of the overall operation when there are differences in performance. More expensive materials that are placed with less effort and last longer can reduce the cost of the initial patching effort, as well as the amount of repatching needed. This reduces the labor and equipment costs for the overall operation.

2. Labor. For the throw-and-roll technique, the labor cost can be as little as two workers who do the actual patching, plus traffic control costs. One of the two workers drives the truck and compacts the patches, and the other shovels the material from the truck into the pothole.

The cost of traffic control can be handled in several different ways, depending upon the site of the patching operation and the needs of the particular agency. Labor costs for traffic control should be included when necessary.

3. Equipment. For the throw-and-roll and semi-permanent procedures, shovels, rakes, or other hand tools are needed for placing the material. For the throw-and-roll method, the only major equipment costs are for the truck carrying the material and the traffic control vehicles and signs.

(Adapted from the "Asphalt Pavement Repair Manuals of Practice," SHRP-H-348, Strategic Highway Research Program, National Research Council.)

West Central Illinois Highway Commissioners Association

The West Central Illinois Highway Commissioners Association is having it's 10th Annual Summer Seminar on Monday, June 17 and Tuesday, June 18. The Monday session is an informational seminar that will address township highway related topics and will include lunch. The seminar will be held at the Macomb, American Legion Hall starting at 9:00 a.m. with registration beginning at 8:00. The day will end with an equipment show, entertainment and dinner at Lake Argyle State Park near Colchester, Illinois.

All of Tuesday's session will be held at Lake Argyle featuring breakfast, vendor booths, construction and maintenance demonstrations (including hands-on), lunch and prize drawings.

This seminar is open to all Townships and Counties. Please check your Illinois County and Township Perspective magazine for the registration form and detailed agenda or call Ron Shanholtzer at (217) 455-4245 for more information.

Illinois Interchange

The Technology Transfer (T^2) Program is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation. Its purpose is to interchange the latest state-of-the-art technology in the areas of roads and bridges by translating the technology into terms understood by local and state highway or transportation personnel.

The Illinois Interchange is published quarterly by the Illinois Technology Transfer Center at the Illinois Department of Transportation. Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect views of the Illinois Department of Transportation, or the Federal Highway Administration. Any product mentioned in the Illinois Interchange is for informational purposes only and should not be considered a product endorsement. Subscriptions are free and are available by writing to:

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Printed by the authority of the State of Illinois - 5/02 - 4,100

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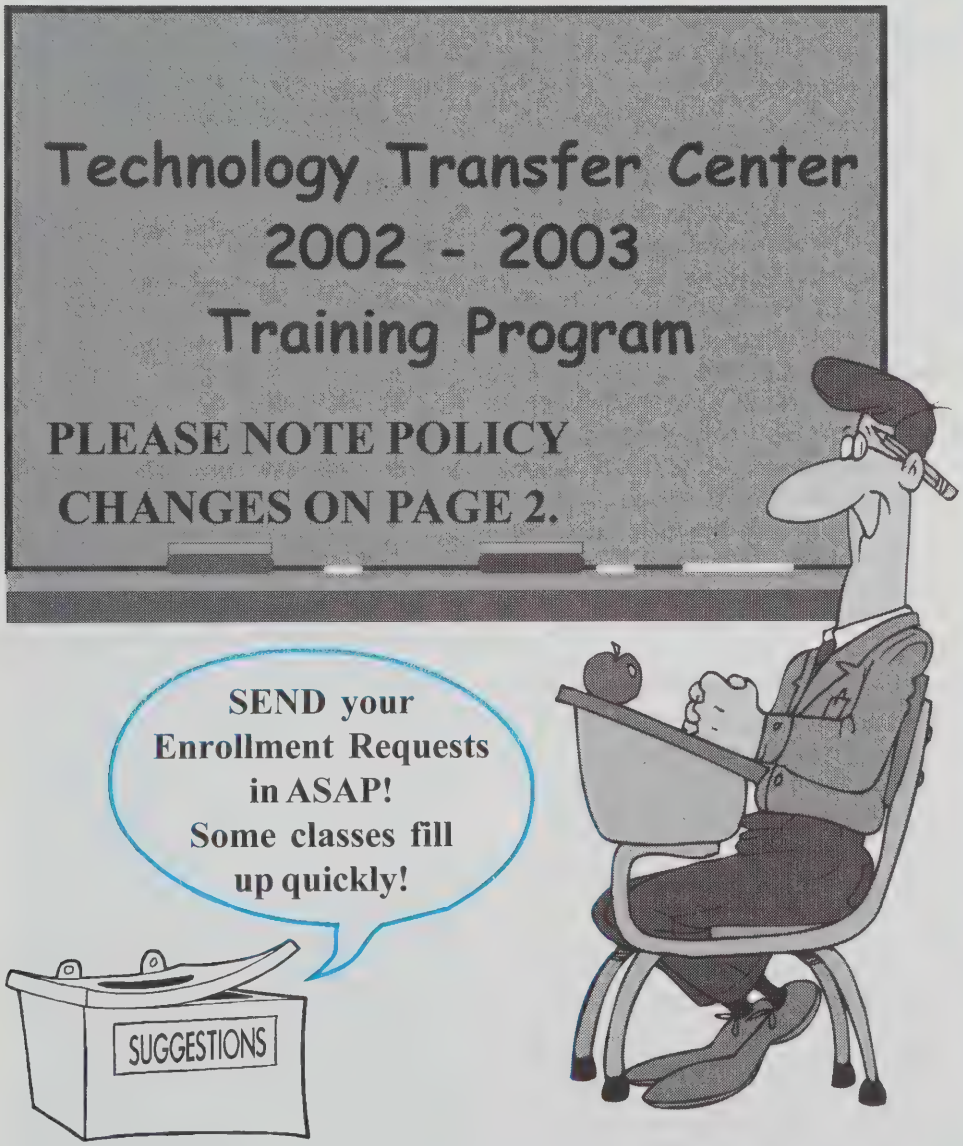
ILLINOIS INTERCHANGE

TECHNOLOGY TRANSFER TODAY FOR TOMORROW'S T²

BUREAU OF LOCAL ROADS AND STREETS L.T.A.P. QUARTERLY

Vol. 10 No. 3 Special Edition 2002



INSIDE:

Please pass this on to other interested parties in your office.

Illinois Department of Transportation

2002 - 2003 Training Program

The courses listed on the following pages constitute the 2002-2003 Technology Transfer Training Program. These courses are scheduled to be presented on the dates shown and at the locations indicated. As you view the list, NOTE THE PREREQUISITES for many of the courses, especially those relating to math or computers. Instruction is geared toward those students who have the necessary prerequisite skills. These classes are all tuition-free. Travel, meals and lodging expenses, are always the responsibility of the student.

ENROLLMENT: We invite your agency to enroll students in the classes you desire by filling out the enrollment form. Please ***type or clearly print*** the enrollment information completely as this information will be entered in our computer for later use on mailings, rosters and certificates. Return the attached enrollment form (or a copy) by using one of the following methods:

BY MAIL:
Illinois Department of Transportation
Bureau of Local Roads and Streets
Technology Transfer Center
2300 S. Dirksen Parkway, Room 205
Springfield, IL 62764

BY FAX. You may fax your enrollment form by dialing 217/785-7296.

It is important that you **send your enrollments in early**. Some classes fill up quickly and we may not be able to schedule additional classes. Enrollments must be received no later than 3 weeks prior to a class. A letter of confirmation will be sent to you once your enrollment has been processed. The confirmation letter and attached summary are sent to notify you that we did receive your enrollment form and have entered it as shown. When you receive this letter, please check the summary for accuracy of class enrollments and spelling of names. If you need to make any changes, please contact our office.

In cases of excess enrollment, some attendance restrictions will be imposed and in cases of insufficient enrollment, classes may be cancelled. Enrollment in a class will be handled in accordance with our policy below.

ENROLLMENT POLICY: If a class is filled, our enrollment policy gives Local Agencies and Department personnel priority over other enrollments.

The confirmation letter you receive is ***only*** to let you know that we did receive your enrollment form. We will continue to enter enrollments in our computer until three weeks prior to a class. We will then determine if we have more enrollments than we have space. If this occurs, Local Agencies and Department personnel will be given priority to attend the class. Other enrollments will be placed in the class on a first come, first served basis.

If a class has more Local Agency personnel enrolled than we have space, then placement will be on a first come first served basis. Therefore, it is extremely important to get your enrollments in as soon as possible. It is also essential to let us know as far in advance as possible, when it is necessary to cancel an enrollment in a class. This will afford us the time and opportunity to accommodate other students who wish to attend the class.

Your ***contact person*** will receive a letter approximately 2 weeks prior to the class confirming your registration and giving the classroom information. All others will be notified that they have been placed on a waiting list and will be contacted if there are further cancellations.

CONSULTANT POLICY: Enrollment for Consultants will be allowed in all Technology Transfer Training classes with the exception of Documentation and Flagger Training.

Consultant registration requests for Documentation of Contract Quantities will only be accepted by the Central Bureau of Construction and is on a first-come, first-served basis so requests in writing are required. See the Documentation course description on page 4 for further enrollment details. Flagger Training is for Local Agency operations only.

Due to the popularity of our classes, **we must limit each Consulting firm to a maximum of four students per class.**

CERTIFICATES: A Certificate of Completion will be awarded to those students who successfully complete the final examination for the class. In those classes where final exams are not given, a Certificate of Attendance will be awarded. Those students successfully completing the Flagger Training class will be issued a flagger card in lieu of a certificate.

Please Note:

Attendance at T² training classes by students who have not enrolled through the Center has led to some classes being overcrowded and has created problems with record keeping and certificate distribution.

Instructors will not admit students into their classes if not enrolled through the Center. Certificates will not be issued to students that have not pre-enrolled.

We want to be fair to those agencies that have enrolled early and have followed our enrollment guidelines - especially those that have been placed on a waiting list for attendance. If you have any questions, call Willy Scheller at (217) 785-5048.

Technology Transfer Training Program

COURSE DESCRIPTIONS: 2002 - 2003

Bridge Construction Inspection

PURPOSE: This course will enable students to inspect the construction of bridges to ensure compliance with plans and specifications.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 15, or equivalent; familiarity with bridge terminology; and probability of assignment to bridge construction inspection within 18 months.

TOPICS TO BE COVERED: Bridge foundations, substructures, steel superstructures, concrete superstructures, deck paving and documentation.

LENGTH OF COURSE: 2 days.

Bridge Repair

PURPOSE: To enable the student to recognize endangering defects in local agency bridges, to determine possible repair alternatives and to select the best alternative to eliminate that defect; and to post bridges in accordance with Federal and State requirements.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 5 or equivalent; knowledge of elementary statics including determination of stress in a simple beam; and familiarity with bridge terminology.

TOPICS TO BE COVERED: Superstructure repair: stell I-beam stringers, truss members, and reinforced PCC and PPC bridges; substructure repair: abutments and piers; miscellaneous repairs; selecting alternatives; and safety.

LENGTH OF COURSE: 1 day.

Confined Space Awareness

PURPOSE: To familiarize the student with what a confined space is, how to recognize hazards and prepare for safety.

TOPICS TO BE COVERED: Confined space hazards, Federal and State laws, definitions of what a confined space is, air monitoring and applicable policies.

LENGTH OF COURSE: 4 to 6 hours.

Culvert Hydraulics

PURPOSE: To enable the student, with some supervision, to establish design constraints and size culverts using both a manual solution (HDS5) and computer applications.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 17, or equivalent; familiarity with basic computer usage and hydraulic terminology, ability to read and understand nomographs; the probability of being involved in culvert design.

TOPICS TO BE COVERED: Selecting design parameters, determining the headwater depth and outlet velocity for a pipe or box culvert with inlet or outlet control, use of FHWA culvert nomographs, and use of FHWA's culvert computer program (HY8).

LENGTH OF COURSE: ½ day.

Documentation

(for Local Agency Highway Personnel Only)

PURPOSE: To provide the student with the ability to document, with some supervision, contract quantities to Federal and State standards.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 15, or equivalent; **one year construction experience** and familiarity with general highway construction terminology and practice.

TOPICS TO BE COVERED: Project diary entries; quantity book preparation and entries; cross-reference system; extra work reports, and the measurement and calculation of pay items for pay quantities occurring in road and bridge plans.

LENGTH OF COURSE: 2-1/2 days.

NOTE: The Technology Transfer Documentation classes will be offered to local agency personnel only. Consultant registration for Documentation of Contract Quantities is on a first-come, first-served basis so requests in writing are required. A Bureau of Construction Registration Form (available on the web site at http://www.dot.state.il.us/contractquantities/registration.html) is required for each individual wishing to attend class. Requests will be accepted via fax at 217/524-4922, Attn: Documentation Registration, or by e-mail at cbetraining@nt.dot.state.il.us. Consultant registration requests will only be accepted by the Central Bureau of Construction. Requests by phone and requests prior to the posted registration dates will not be accepted.

Erosion Control

PURPOSE: To familiarize the student with different types of erosion control methods that are available, and to discuss when, where, and how to install each type.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 5 or equivalent.

TOPICS TO BE COVERED: Temporary and permanent erosion control measures, planned management design, NPDES permits, seeding, mulching, erosion control blankets, and IDOT erosion control design standards.

LENGTH OF COURSE: 1 day.

Flagger Training

(for Local Agency Highway Personnel Only)

PURPOSE: This class provides training to local agency personnel for their day labor and maintenance activities. It meets requirements established by the Manual on Uniform Traffic Control Devices and the Occupational Safety and Health Administration.

√ **PREREQUISITES**: This course is available to local agency highway personnel holding a valid driver's license or an Illinois Identification Card from the Secretary of State.

TOPICS TO BE COVERED: Traffic control devices, the flagger's roll in work zone safety, Illinois laws and responsibilities, and flagging procedures.

LENGTH OF COURSE: ½ day.

NOTE: This class does not meet the flagger certification requirements for projects constructed in accordance with the Standard Specifications for Road and Bridge Construction published by the Illinois Department of Transportation. A Flagger Training Card may not be used in place of a Certified Flagger Card.

Hazardous Materials First Responder

PURPOSE: This training is intended to meet the requirements of the Occupational Safety and Health Administration and United States Environmental Protection Agency (OSHA/USEPA) Hazardous Waste Operations and Emergency Response Final Rule (29 CFR 1910.120, effective March 6, 1990) and is for personnel who may be the first-on-the scene at a hazardous materials incident.

TOPICS TO BE COVERED: Basic hazard recognition, identification, reporting, and self-protection for individuals who may do preliminary observation of an event. *It does not provide the necessary hazard recognition and protective skills to equip you to deal effectively and safely with activities beyond the awareness level.*

LENGTH OF COURSE: 1 day.

Highway Engineering Principles

PURPOSE: For engineering and technical employees to familiarize or review their knowledge of highway terminology and procedures used in conjunction with a construction or maintenance project from its initial stage to final completion.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 17 or equivalent; involvement in highway design or highway project development activities.

TOPICS TO BE COVERED: Basic mathematics; Standard Specifications; reading plans, specifications, material proposals, maintenance procedures and final papers.

LENGTH OF COURSE: 1 day.

Highway Signing

PURPOSE: Placement of traffic signing to help ensure highway safety by providing for the orderly and predictable movement of all traffic, motorized and non-motorized, throughout the highway system, and to provide such guidance and warnings as are needed to ensure the safe and informed operation of individual elements of the traffic stream.

√ **PREREQUISITES**: The probability of assignment to sign erection responsibilities.

TOPICS TO BE COVERED: Traffic control sign design, placement, uniformity and maintenance.

LENGTH OF COURSE: 1 day.

MFT Accounting and Auditing

PURPOSE: This course will enable students to properly record and account for MFT funds utilized on local agency projects.

TOPICS TO BE COVERED: Accounting and auditing principles of MFT funds as established by the Illinois Department of Transportation.

LENGTH OF COURSE: 1 day.

OSHA 10-Hour

PURPOSE: To provide safety training for highway personnel on several work related topics. Participants receive an OSHA safety certificate.

TOPICS TO BE COVERED: Cranes, electrical, hazard communication, ladders & stairs, fire protection, personal protection equipment, material handling, tools, walking working surfaces, and welding safety.

LENGTH OF COURSE: 1½ days.

Pavement Construction Inspection

PURPOSE: To enable the student to inspect the construction of bituminous surface treatments, asphalt concrete and PCC pavements to ensure compliance with plans and specifications.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 15, or equivalent; and the probability of inspection of pavement construction within 18 months.

TOPICS TO BE COVERED: Bases: granular and stabilized; Surface Treatment: preparation and prime, design, and construction control; Bituminous Concrete: road mix and low and high quality plant mixes; Portland Cement Concrete: concrete placement, reinforcement, joints, finishing and curing, intersection joint design and field layout.

LENGTH OF COURSE: 3 days.

Pavement Maintenance

PURPOSE: To enable student to recognize the causes of pavement failure and to make and/or recommend corrective measures including alleviating the cause, selecting the proper materials and methods, and documenting the work accomplished. Discusses various types of road surfaces with the emphasis on flexible bases and developing a pavement management system.

√ **PREREQUISITES**: Knowledge of equipment and materials (particularly asphaltic materials); and probability of involvement in scheduling pavement maintenance activities.

TOPICS TO BE COVERED: Drainage and subsurface maintenance; patching and resurfacing material; street patching methods; portland cement concrete, and utility cuts; seal coats and crack sealing; and developing a systematic approach to pavement maintenance.

LENGTH OF COURSE: 1 day.

Piling

PURPOSE: Introduction to foundation and piling inspection and testing procedures, field documentation, and discussion of problems encountered with piling installation.

√ **PREREQUISITES**: Probability of assignment to inspection and documentation of pile driving operation. Familiarity with piling terminology.

TOPICS TO BE COVERED: Determining energy requirements for hammers, blow counts, site safety, piling alignment, splicer requirements, bearing values, setting up of field books.

LENGTH OF COURSE: 1 day.

Rehabilitating Streets and Highways

PURPOSE: To familiarize student with advantages, disadvantages, capabilities, and elements of construction for various methods of rehabilitating urban streets. This will be an information sharing/discussion session for local agencies on what is and is not working for them on their urban streets.

TOPICS TO BE COVERED: PCC and bituminous rehabilitation techniques, seal coats and slurry seals, rehabilitation materials, maintenance planning and programming.

LENGTH OF COURSE: 1 day.

Small Drainage Structure Construction Inspection

PURPOSE: This course will enable students to inspect the construction of pipe culverts, storm sewers and related structures to ensure compliance with plans and specifications.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 15, or equivalent; familiarity with bridge and culvert terminology; and probability of assignment to drainage structure inspection within 18 months.

TOPICS TO BE COVERED: Culvert - Sewer differences, trenching, bedding, pipe installation, backfill, and documentation. Precast concrete box culverts, pipe liners, and other new methods will also be reviewed.

LENGTH OF COURSE: 2 days.

Remember to type or clearly print your enrollment form and send it in as soon as possible!

Snow Removal and Ice Control for New Drivers

PURPOSE: Introduction to snow removal and ice control operations; including major components, equipment adjustment and calibration, and proper snow and ice control methods.

√ **PREREQUISITES**: Probability of assignment to snow removal responsibilities within 12 months.

TOPICS TO BE COVERED: Equipment preparation; snow removal procedures and methods; special situations; after-storm procedures; spreader calibration; public relations; and safety.

LENGTH OF COURSE: 1/2 day. All snow removal and ice control classes start at 8:30 a.m., if this class becomes full a second class will be held at 1:00 p.m.

NOTE: Copies of the video used in this class are available for Local Agencies who would want a copy for their own training purposes. Copies may be obtained through the Video/Publication Library Catalog.

Street Sweeping Techniques

Basic Air/Vacuum Street Sweeping

PURPOSE: To introduce the student to the basics of air/vacuum street sweeping including safe and efficient operation, maintenance, component functions, and other routine operating techniques.

√ **PREREQUISITES**: New air/vacuum street sweeper operators or anyone who might be assigned air/vacuum street sweeping responsibilities in the near future.

TOPICS TO BE COVERED: Street sweeping purpose, air/vacuum sweeper types, basic vehicle operation, component and system function, operator maintenance checks, and operating techniques and tips.

LENGTH OF COURSE: 1 day.

Street Sweeping Techniques

Basic Mechanical Street Sweeping

PURPOSE: To introduce the student to the basics of mechanical street sweeping including safe and efficient operation, maintenance, component functions, and other routine operating techniques.

√ **PREREQUISITES**: New mechanical street sweeper operators or anyone who might be assigned mechanical street sweeping responsibilities in the near future.

TOPICS TO BE COVERED: Street sweeping purpose, mechanical sweeper types, basic vehicle operation, component and system function, operator maintenance checks, and operating techniques and tips.

LENGTH OF COURSE: 1 day.

Survey I - Beginning

PURPOSE: To enable potential survey personnel, with some supervision, to know the use and care of basic surveying instruments and equipment.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 17, or equivalent. Ability to perform math equations on a calculator.

TOPICS TO BE COVERED: Surveying mathematics; use, care and maintenance of the transit, level and chain; horizontal angle measurements with transit; leveling and the leveling rod; chaining; field note-keeping and safety.

LENGTH OF COURSE: 3 days.

NOTE: A DESCRIPTION OF THE MATHEMATICS REFRESHER COURSE AND ITS MODULES FOLLOW THESE COURSE LISTINGS.

Survey II - Intermediate

(Highway Construction Surveying)

PURPOSE: To enable the student, with some supervision, to establish the alignment of the route and to obtain data necessary for the preparation of highway construction plans.

√ **PREREQUISITES**: Mathematics Refresher Course, Units 1 through 17, or equivalent; knowledge of basic surveying operations and familiarity with surveying instruments and equipment; familiarity with surveying and construction terms, or completion of Beginning Surveying Class. Ability to perform math equations on a calculator.

TOPICS TO BE COVERED: Horizontal alignment; vertical alignment; horizontal and vertical curves; super-elevations, topography; cross sectioning; and traversing.

LENGTH OF COURSE: 4 days.

Survey III - Construction Staking

PURPOSE: To enable the student, with some supervision, to stake common construction jobs.

√ **PREREQUISITES**: Attendance in both the Beginning and Intermediate Surveying classes or equivalent experience.

TOPICS TO BE COVERED: Staking theory, special staking, slope staking, bridge staking, culvert staking and pavement staking.

LENGTH OF COURSE: 3 days.

*__Survey Enrollees Please Note__: Mathematics and field work are important parts of surveying instruction. The surveying courses have been updated to provide more of these elements. The first day of the Survey I class provides essential survey math instruction. This means that less math instruction will be offered in the Survey II and III classes so that field exercises can be added (weather permitting). **We strongly suggest that students enroll in Survey I prior to enrolling in Survey II & III or be proficient in math and able to perform trigonometric calculations on a calculator.**

Survey IV - Mapping (Legal Description, GPS & State Plane Coordinates)

PURPOSE: Provides the ability to utilize descriptions of land and maps for highway use, explains Global Positioning Systems and State Plane Coordinates.

√ **PREREQUISITES**: Knowledge of surveying operations, familiarity with surveying terminology, and equivalent surveying math skills.

TOPICS TO BE COVERED: Use of different types of maps (Quad and USGS), use of stereoscopes, rectangular survey, legal descriptions, GPS, and conversion to state plane coordinates.

LENGTH OF COURSE: 2 days.

Team Building for Supervisors and Crew Leaders

PURPOSE: Stresses the importance of team building. Provides management and conflict resolution techniques to perform more effectively and efficiently.
TOPICS TO BE COVERED: The importance of team building, management and conflict resolution techniques.
LENGTH OF COURSE: 1 day.

Trenching and Shoring Safety

PURPOSE: To provide students with safety procedures to follow when involved in trenching and shoring operations.
TOPICS TO BE COVERED: Utility notification, soil mechanics, slope requirements, manual and visual testing, shoring techniques and equipment.
LENGTH OF COURSE: 4 to 6 hours.

Understanding Specifications

PURPOSE: This course will enable students to identify the different types of contract documents and explain the hierarchy of these contract documents, to understand the format and use of the Standard Specifications, and to determine when and how to write effective special provisions and plan notes.
√ **PREREQUISITES**: Involvement in highway design, highway project development, or highway construction activities.
TOPICS TO BE COVERED: Specifications, special provisions, pay items, and plans.
LENGTH OF COURSE: 4 to 5 hours.

Urban Storm Mitigation and Tree Damage Control

PURPOSE: To introduce the concept of tree management as a vehicle to storm mitigation.
TOPICS TO BE COVERED: Selecting more storm resistant trees for reduction of storm mitigation costs, tree pruning techniques that will maintain tree health and reduce storm breakage, recognizing healthy and structurally sound trees, tree management as a storm mitigation technique, and planning and responding to natural disasters.
LENGTH OF COURSE: 1 day.

Work Zone Safety for Projects (Crews)

PURPOSE: To provide the student with the basic elements required for work zone traffic control and protection.
TOPICS TO BE COVERED: Need for traffic control, laws and legal considerations, applicable portions of the Manual on Uniform Traffic Control Devices, developing traffic control plans, work zone traffic control and the Work Area Protection Guide for street and utility repairs.
LENGTH OF COURSE: 1 day.

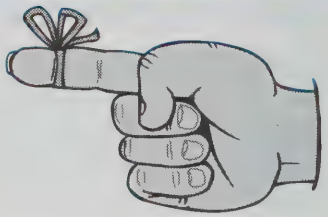
NOTE: A DESCRIPTION OF THE MATHEMATICS REFRESHER COURSE AND ITS MODULES FOLLOW THESE COURSE LISTINGS.

Videotapes for Your Training Needs

The Center has a variety of videotapes that are excellent for on-site training. The tapes offer an easy way to educate your employees at your facility with minimal expense. They show work crews how to perform their work safer and more efficiently with quality results. Training by the use of videotape can assure management that all employees are familiar with their responsibilities.

The Center will loan tapes, free of charge, for a two week period. A listing of videotapes and an order form are available in the Videotape/ Publication Catalog which can be obtained from the Department's website at http://www.dot.state.il.us/blr/library.html or by contacting the Center at 217/785-5048.

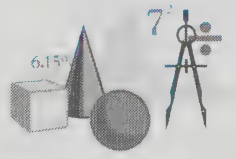
REMINDERS



Please print clearly or type your enrollment request and send it in as soon as possible!

Please remember that the confirmation letter you receive is only to let you know that we did receive your enrollment form. It does not guarantee placement in the class. A class registration letter will be sent approximately two weeks prior to the class informing you of your status.

Mathematics Refresher Course



PURPOSE: This course is designed as a math refresher for individuals planning on enrolling in the Technology Transfer Training Program. The course description specifies what level of skill must be reached in the Math Refresher course to meet the required prerequisites for that class.

FORMAT: This self study course consists of the 18 modules listed below, which can be studied either at home or on the the job. Each module has a step-by-step explanation of the subject it covers and it has job-related problems at the end of each unit. A Preliminary Screening Test can be used to determine which areas the student needs to review. This pretest is available upon request. The Preliminary Screening Test and the Math Refresher Course are both available at no cost to local agencies. The modules of the course are available with English or Metric units. Please specify your preference when completing the order blank below.

1. Addition and Subtraction
2. Multiplication and Division
3. Rounding and Degrees of Accuracy
4. Fractions
5. Formulas
6. Solving Equations
7. Length and Weight Units
8. Liquid and Weight Units
9. Averages and Percentages
10. Proportion
11. Square Root, Pythagorean Theorem
12. Area: Triangles, Rectangles, Trapezoids
13. Area: Circles
14. Volume: Prisms, Average End Areas
15. Volume: Cones and Combinations
16. Trigonometry of Right Triangles
17. Trigonometry of Oblique Triangles
18. Metric Module

MATH REFRESHER COURSE ORDER FORM

Name _____ **Title** _____

Agency _____ **Phone ( )** _____

Address _____

City _____ **State** _____ **Zip Code** _____

Please send me the following items I have marked.

☐ PRELIMINARY SCREENING TEST

MATH REFRESHER COURSE MODULES

☐ **METRIC** ☐ **ENGLISH** ☐ **BOTH**

001	**002**	**003**	**004**	**005**	**006**	**007**	**008**	**009**
010	**011**	**012**	**013**	**014**	**015**	**016**	**017**	**018**

Mail Requests To:
Illinois Department of Transportation
Bureau of Local Roads and Streets
Technology Transfer Center - Room 205
2300 South Dirksen Parkway
Springfield, Illinois 62764
Fax Number (217) 785-7296

FOR OFFICE USE ONLY:

Order # _____

Date Rcvd. _____

Mailed _____

T2 Training Program: 2002 - 2003

Page 1 of 2

COURSE	#	LOCATION	2002 OCT	2002 NOV	2002 DEC	2003 JAN	2003 FEB	2003 MAR	2003 APR
Bridge Construction Inspection	1	Schaumburg			11-12				
	2	Bloomington			17-18				
Bridge Repair	3	Springfield				22			
Confined Space Awareness	4	Salem				8			
	5	Moline				15			
	6	Libertyville				30			
Culvert Hydraulics	7	Springfield					14		
Documentation	8	Springfield				14-16			
	9	Schaumburg					4-6		
Erosion Control	10	Moline						4	
	11	Kankakee						18	
Flagger Training	12	Chicago					11		
	13	Peoria					26		
	14	Springfield					27		
	15	Salem						12	
	16	Carbondale						13	
	17	Libertyville						18	
	18	Rockford						19	
	19	Ottawa						26	
Haz. Mat. First Responder	20	Glen Ellyn				30			
	21	Peoria						20	
Highway Engineering Principles	22	Chicago					26		
	23	Schaumburg						27	
Highway Signing	24	Peoria					6		
	25	Glen Ellyn						13	
MFT Accounting and Auditing	26	Springfield							3
	27	Glen Ellyn							17
OSHA 10-Hour	28	Peoria					19-20		
	29	Chicago Hts.						19-20	
Pavement Const. Inspection	30	Schaumburg			3-5				
	31	Libertyville					4-6		
Pavement Maintenance	32	Centralia				9			
	33	Glen Ellyn				28			

T2 Training Program: 2002 - 2003

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COURSE	#	LOCATION	2002 OCT	2002 NOV	2002 DEC	2003 JAN	2003 FEB	2003 MAR	2003 APR
Piling	34	Schaumburg			10				
Rehabilitating Streets & Highways	35	Springfield					25		
	36	Glen Ellyn						27	
Small Drainage Structure Inspection	37	Springfield				28-29			
	38	Chicago					4-5		
Snow and Ice Control	39	Rockford		20					
	40	Carbondale			4				
	41	Salem			5				
	42	Woodstock			10				
	43	Chicago Hts.			19				
Street Sweeping - Air	44	Elgin			17				
Street Sweeping - Mechanical	45	Elgin			18				
Survey I - Beginning	46	Schaumburg				28-30			
Survey II - Intermediate	47	Schaumburg					18-21		
Survey III - Construction Staking	48	Schaumburg					25-27		
Survey IV - Mapping	49	Springfield		19-20					
Team Building	50	Rockford		19					
	51	Woodstock			11				
Trenching & Shoring Safety	52	Salem				9			
	53	Moline				16			
	54	Chicago Hts.						6	
Understanding Specifications	55	Springfield						12	
	56	Chicago							22
	57	Schaumburg							23
Urban Storm Mitigation	58	Glen Ellyn				29			
	59	Springfield					11		
	60	Moline					27		
Work Zone Safety	61	Chicago				8			
	62	Moline				28			
	63	Centralia					11		
	64	Chicago Hts.						4	
	65	Ottawa						5	

2002 - 2003 T2 Classes	North Location		Central Location		South Location
	Glen Ellyn	Other Cities	Springfield	Other Cities	Other Cities
Bridge Construction Inspection		Schaumburg: Dec. 11-12		Bloomington: Dec. 17-18	
Bridge Repair			Jan. 22		
Confined Space Awareness		Moline: Jan. 15 Libertyville: Jan. 30			Salem: Jan. 8
Culvert Hydraulics			Feb. 14		
Documentation		Schaumburg: Feb. 4-6	Jan. 14-16		
Erosion Control		Moline: Mar. 4 Kankakee: Mar. 18			
Flagger Training		Chicago: Feb. 11 Libertyville: Mar. 18 Rockford: Mar. 19 Ottawa: Mar. 26	Feb. 27	Peoria: Feb. 26	Salem: Mar. 12 Carbondale: Mar. 13
Haz. Mat. First Responder	Jan. 30			Peoria: Mar. 20	
Hwy. Engineering Principles		Chicago: Feb. 26 Schaumburg: Mar. 27			
Highway Signing	Mar. 13			Peoria: Feb. 6	
MFT Accounting & Auditing	Apr. 17		Apr. 3		
OSHA 10-Hour		Chicago Hts.: Mar. 19-20		Peoria:Feb. 19-20	
Pavement Construction Inspection		Schaumburg: Dec. 3-5 Libertyville: Feb. 4-6			
Pavement Maintenance	Jan. 28				Centralia: Jan. 9
Piling		Schaumburg: Dec. 10			
Rehabilitating Streets & Highways	Mar. 27		Feb. 25		
Small Drainage Structure Insp.		Chicago: Feb. 4-5	Jan. 28-29		
Snow and Ice Control		Rockford: Nov. 20 Woodstock: Dec. 10 Chicago Hts.: Dec. 19			Carbondale: Dec. 4 Salem: Dec. 5
Street Sweeping-Air		Elgin: Dec. 17			
Street Sweeping-Mechanical		Elgin: Dec. 18			
Survey I-Beginning		Schaumburg: Jan. 28-30			
Survey II-Intermediate		Schaumburg: Feb. 18-21			
Survey III-Const. Staking		Schaumburg: Feb. 25-27			
Survey IV-Mapping			Nov. 19-20		
Team Building		Rockford: Nov. 19 Woodstock: Dec. 11			
Trenching & Shoring Safety		Moline: Jan. 16 Chicago Hts.: Mar. 6			Salem: Jan. 9
Understanding Specifications		Chicago: Apr. 22 Schaumburg: Apr. 23	Mar. 12		
Urban Storm Mitigation/Tree Damage Control	Jan. 29	Moline: Feb. 27	Feb. 11		
Work Zone Safety (Crews)		Chicago: Jan. 8 Moline: Jan. 28 Chicago Hts.: Mar. 4 Ottawa: Mar. 5			Centralia: Feb. 11

Technology Transfer Training Program: 2002 - 2003

ENROLLMENT FORM

Return to:
Illinois Department of Transportation
Technology Transfer Center
2300 S. Dirksen Parkway, Room 205
Springfield, IL 62764

FAX #: 217/785-7296

Please **Print** students' names as they should appear on their Certificate and check the boxes for each course desired.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
	Bridge Construction Inspection		Bridge Repair	Confined Space Awareness			Culvert Hydraulics	Documentation (for Local Agency Only)		Erosion Control		Flagger Training (for Local Agency Only)								Haz. Mat. First Responder		Highway Eng. Principles		Highway Signing		MFT Accounting and Auditing		OSHA 10-Hour		Pavement Construction Inspection		Pavement Maintenance	
	Dec. 11-12	Dec. 17-18	Jan. 22	Jan. 8	Jan. 15	Jan. 30	Feb. 14	Jan. 14-16	Feb. 4-6	Mar. 4	Mar. 18	Feb. 11	Feb. 26	Feb. 27	Mar. 12	Mar. 13	Mar. 18	Mar. 19	Mar. 26	Jan. 30	Mar. 20	Feb. 26	Mar. 27	Feb. 6	Mar. 13	Apr. 3	Apr. 17	Feb. 19-20	Mar. 19-20	Dec. 3-5	Feb. 4-6	Jan. 9	Jan. 28
Location Code:	SC	BL	SP	SA	MO	LI	SP	SP	SC	MO	KA	CH	PE	SP	SA	CA	LI	RO	OT	GL	PE	CH	SC	PE	GL	SP	GL	PE	CS	SC	LI	CE	GL
Class Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Name of Agency Department

Business Address Telephone

City - State - Zip

Contact Person (Please Print) Fax #

Signature Title

Location Codes: **BL** = Bloomington **CA** = Carbondale **CE** = Centralia **CH** = Chicago **CS** = Chicago Heights **EL** = Elgin **GL** = Glen Ellyn **KA** = Kankakee **LI** = Libertyville **MO** = Moline **OT** = Ottawa **PE** = Peoria **RO** = Rockford **SA** = Salem **SC** = Schaumburg **SP** = Springfield **WO** = Woodstock

Technology Transfer Training Program: 2002 - 2003

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2300 S. Dirksen Parkway, Room 205
Springfield, IL 62764

FAX #: 217/785-7296

Please **Print** students' names as they should appear on their Certificate and check the boxes for each course desired.

	Piling	Rehabilitating Streets & Highways		Small Drainage Structure Inspection		Snow & Ice Control					Street Sweeping-Air	Street Sweeping-Mech.	Survey I-Beginning	Survey II-Intermediate	Survey III-Const. Staking	Survey IV-Mapping	Team Building		Trenching & Shoring Safety			Understanding Specifications			Urban Storm Mitigation/ Tree Damage Control			Work Zone Safety				
	Dec. 10	Feb. 25	Mar. 27	Jan. 28-29	Feb. 4-5	Nov. 20	Dec. 4	Dec. 5	Dec. 10	Dec. 19	Dec. 17	Dec. 18	Jan. 28-30	Feb. 18-21	Feb. 25-27	Nov. 19-20	Nov. 19	Dec. 11	Jan. 9	Jan. 16	Mar. 6	Mar. 12	Apr. 22	Apr. 23	Jan. 29	Feb. 11	Feb. 27	Jan. 8	Jan. 28	Feb. 11	Mar. 4	Mar. 5
Location Code:	SC	SP	GL	SP	CH	RO	CA	SA	WO	CS	EL	EL	SC	SC	SC	SP	RO	WO	SA	MO	CS	SP	CH	SC	GL	SP	MO	CH	MO	CE	CS	OT
Class Number:	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65

Name of Agency Department

Business Address Telephone

City - State - Zip

Contact Person (Please Print) Fax #

Signature Title

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NOTICE FOR NHI COURSES

Attached is a listing of the National Highway Institute (NHI) courses available. In the past, local agencies, consultants, and contractors have participated in courses sponsored by the Illinois Department of Transportation and this has proven to be beneficial for all concerned. This listing includes all courses available for scheduling.

If you are interested in classes being made available, please complete the attached form and return to Arno Grey, Illinois Department of Transportation, Room 313, 2300 South Dirksen Parkway, Springfield, IL 62764. If you need additional information, you may call Arno at 217/782-3708.

COURSE DESCRIPTIONS

Mathematical Sciences

123002 Scientific Approaches to Transportation Research

Civil Engineering – Structures

130023 Nondestructive Testing Methods for Steel Bridges
130048 Seismic Design & Retrofit of Highway Bridges
130053 Bridge Inspection Refresher Course **(see note at bottom of page)**
130054 Engineering Concepts for Bridge Inspectors
130055 Safety Inspection of In-Service Bridges **(see note at bottom of page)**
130060 Vessel Collision Design for Highway Bridges
130063 Seismic Bridge Design Applications
130069 Hazardous Bridge Coatings
130078 Fracture Critical Inspection Techniques for Steel Bridges
130079 Bridge Coatings Inspection

Civil Engineering – Materials, Pavements, and Base Design

131008 Techniques for Pavement Rehabilitation
131009 Portland Cement Concrete Materials
@131023 Highway Materials Engineering
131026 Pavement Subsurface Drainage Design
131029 AASHTO Pavement Overlay Design
@131032 Hot-Mix Asphalt Construction
131033 Const. of Portland Cement Concrete Pavements
131034 Pavement Distress Identification
131035 Pavement Management Systems (PMS)
131044 Hot-Mix Asphalt Production Facilities
131045 Hot-Mix Asphalt Materials, Characteristics and Control
131050 Asphalt Pavement Recycling for State & Local Governments
131051 Superpave for Senior Managers
131053 Superpave Fundamentals
131054 Pavement Preservation: The PMS Concept
131058 Pavement Preservation: Selecting Pavements for Preventative Maintenance
@131060 Concrete Pavements Design Details & Construction Practices
131062 P.C.C. Pavement Evaluation & Rehabilitation
131063 Hot-Mix Asphalt Pavement Evaluation & Rehabilitation
131064 Introduction to Mechanistic Design for New & Rehabilitated Pavements

Civil Engineering - Geotechnical

@132012 Soils & Foundations Workshop
132013 Geosynthetics Engineering Workshop
@132014 Drilled Shafts
132016 Geotechnical & Foundation Engineering
@132021 Driven Pile Foundations-Design & Construction
@132022 Driven Pile Foundations-Construction Monitoring
132031 Geo./Found. Engr.: Mod. 1 - Subsurface Investigation
132032 Geo./Found. Engr.: Mod. 2 - Geotechnical Contracting and QA/QC
132033 Geo./Found. Engr.: Mod. 3 - Soil Slopes & Embankment Design
132034 Geo./Found. Engr.: Mod. 4 – Ground Improvement Techniques
132035 Geo./Found. Engr.: Mod. 5 - Rock Slopes:
132036 Geo./Found. Engr.: Mod. 6 - Earth Retaining Structures
132037 Geo./Found Engr.: Mod. 7 – Shallow Foundations

NOTE

13053 - Bridge Inspection Refresher Training is commonly referred to as the **three-day Bridge Inspection Refresher Course** which is scheduled for January 28-30, 2003.

13055 - Safety Inspection of In-Service Bridges is commonly referred to as the **two-week Bridge Inspector Training Course** which is scheduled for January 6-17, 2003.

132038 Geo./Found Engr.: Mod. 8 - Deep Foundations
132039 Geo./Found. Engr.: Mod 9 - Geotechnical Earthquake Engineering
132040 Geo./Found. Engr.: Mod. 10 - Geotechnical Aspects of Pavements
132041 Geo./Found. Engr.: Mod. 11 - Geotechnical Instrumentation
132042 Design of Mechanically Stabilized Earth Walls & Reinforced Soil Slopes
132043 Construction of Mechanically Stabilized Earth Walls & Reinforced Soil Slopes
132068 LRFD for Highway Bridge Substructures

Civil Engineering – Design & Traffic Operations

@133005 Highway Capacity & Quality of Flow
133010 Computerized Traffic Signal Systems
133028 Traffic Control Software & Signalization
@133048 Managing Traffic Incidents & Roadway Emergencies
133072 High Occupancy Vehicle (HOV) Facilities
133075 Freeway Traffic Operations
133077 Transient Protection Grounding & Shielding of Electronic Traffic Control Equipment
133078 Access Management Location & Design

Civil Engineering – Construction & Maintenance

134001 Principles of Writing Highway Construction Specifications
134005 Value Engineering Workshop
@134006 Highway/Utility Issues
134029 Bridge Maintenance Training
@134042 Materials Control & Acceptance-Quality Assurance
134049 Use of Critical Path Method (CPM) for Estimating, Scheduling & Timely Completion

Civil Engineering - Hydraulics

135010 Highways in the River Environment
135027 Urban Drainage Design
135028 Stormwater Pump Station Design
135041 HEC–RAS, River Analysis System
135046 Stream Stability & Scour at Highway Bridges
135048 Countermeasure Design for Bridge Scour & Stream Instability
135056 Culvert Design
135057 HYDRAIN – Integrated Drainage Design Computer System
135065 Introduction to Highway Hydraulics
135067 Practical Highway Hydrology
135071 Surface Water Modeling with Flo2 DH & SMS
135080 Hydrologic Modeling with the Watershed Modeling System (WMS)

Civil Engineering – Intelligent Transportation Systems (ITS)

@137001 Intelligent Transportation Systems (ITS) Awareness Seminar
@137002 Deploying Integrated ITS - Metropolitan
137003 ITS Public/Private Partnerships
@137005 ITS Telecommunications Overview
137007 Rural ITS Toolbox
@137013 Using the National ITS Architecture for Deployment
137019 ITS Software Acquisition
137020 ITS Procurement
137022 CORSIM Traffic Simulation Model Training
137024 Introduction to Systems Engineering
137025 Recommended Practices for Operations of Advanced Transportation Systems
137026 Project Management for Advanced Transportation Systems
137029 Turbo Architecture Software Training
137030 Fundamentals of Road Weather Management

Real Estate

141029 Basic Relocation
141030 Advanced Relocation
141031 Business Relocation
141036 Eminent Domain Training for Attorneys & Appraisers

Environment

@142005 NEPA & Transportation Decision Making
142007 Fundamentals & Abatement of Highway Traffic Noise
142018 Functional Assessment of Wetlands
142036 Public Involvement the Transportation Decision Making Process
142042 Fundamentals of Environmental Justice

Statewide Planning

151018 Application of the FHWA Traffic Monitoring Guide
151021 Administration of FHWA Planning Grant
151029 Application of Geographic Information Systems for Transportation
151034 Development and Implementation of Travel Surveys

Metropolitan Planning

152054 Intro. to Urban Travel Demand Forecasting
152060 Advanced Urban Travel Demand Forecasting for Large Urban Areas
152068 ITS Deployment Analysis System (IDAS)

152069 Introduction to Metropolitan Planning

Financial Management

231013 Highway Program Financing

Civil Rights

361019 On the Road to Equality: Women in Highway Construction
361020 Partnering for Native American Employment in Highway Construction

Highway Safety

380003 Design & Operation of Work Zone Traffic Control
380005 Railroad-Highway Grade Crossing Improvement Program
380032 AASHTO Roadside Design Guide
380034 Design Construction & Maintenance of Highway Safety Appurtenances & Features
380060 Work Zone Traffic Control for Maintenance & Operations on Rural Highways
380063 Construction Zone Safety Inspection
380068 Tools for Integrating Highway Safety Into Design
380069 Road Safety Audits and Road Safety Audit Reviews

Public Affairs

420041 Media Relations Training for State & Local Government

= New or Revised Course Listing
@ = Updated Courses

NHI COURSE RESPONSE FORM

Please Return To: **Arno Grey, Illinois Department of Transportation, Room 313, 2300 South Dirksen Parkway, Springfield, IL 62764 or by fax at 217/524-7260.**

Course No. **Title** **# of Participants**

_____

_____

_____

_____

RETURNED BY:

Company _____

Address _____

Contact Person _____

Telephone _____

Illinois Interchange

The Technology Transfer (T^2) Program is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation. Its purpose is to interchange the latest state-of-the-art technology in the areas of roads and bridges by translating the technology into terms understood by local and state highway or transportation personnel.

The Illinois Interchange is published quarterly by the Illinois Technology Transfer Center at the Illinois Department of Transportation. Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect views of the Illinois Department of Transportation, or the Federal Highway Administration. Any product mentioned in the Illinois Interchange is for informational purposes only and should not be considered a product endorsement. Subscriptions are free and are available by writing to:

Illinois Technology Transfer Center
Illinois Department of Transportation
2300 South Dirksen Parkway - Room 205
Springfield, IL 62764

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FAX ..... (217) 785-7296

T^2 Advisory Committee

The people listed below help guide and direct the activities of the Illinois T^2 Program. You are encouraged to contact any of them to comment or make suggestions.

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RR#2, Box 82P, Clinton, IL 61727
(217) 935-2438

Douglas Bishop, County Engineer, Perry County
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(618) 357-6556

Ed Reeder, Carbondale Director of Public Works
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(618) 549-5302

Lynn Krauss, Director of Public Works
9446 S. Raymond Ave., Oak Lawn, IL 60453
(708) 499-7816

Eldon Stahl, Medina Township Highway Commissioner
Peoria County, R.R. 1, Dunlap, IL 61525
(309) 579-3101

Olen Kibler, Newman Township Highway Commissioner
Douglas County, 608 North Howard, Box 73,
Newman, IL 61942
(217) 837-2723

Printed by the authority of the State of Illinois - 8/02- 4,250

Visit our website at www.dot.state.il.us/blr/t2center.html or E-mail us at T2LRSDOT@nt.dot.state.il.us

Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

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ILLINOIS INTERCHANGE

TECHNOLOGY TRANSFER TODAY FOR TOMORROW

T²

BUREAU OF LOCAL ROADS AND STREETS L.T.A.P. QUARTERLY

Vol. 10 No. 4 Winter 2002

Your Technology Transfer Center wishes you a safe and prosperous holiday!

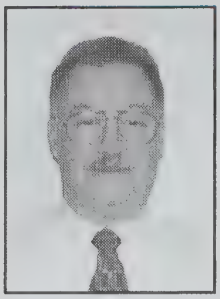
Roy David Amy Willy

SEASONS GREETINGS

INSIDE:

Please pass this on to other interested parties in your office.

Illinois Department of Transportation



From the Desk of...

FARE-THEE-WELL

It is with some reluctance but yet great anticipation that I write this, my last newsletter column for the Illinois Interchange Newsletter. On December 31, 2002 I will be retiring from the Illinois Department of Transportation. My 34 1/2 year career with the Department has been in the Bureau of Local Roads and Streets. Of all those years the most rewarding and interesting have been the last 10 years as manager of the Technology Transfer Center. I have enjoyed developing the Technology Transfer Program, centering it around the needs of such a diverse customer group. This has been a tremendous challenge, one that I am very grateful to have been a part of. I will miss all the friendships that I have made over my career with the Department. I thank those of you who have been my mentors, providing me direction, assistance and support. I will especially miss the international, national and local agency friendships that I developed as the result of the Technology Transfer Program. Not only will I miss the friendships, but also the opportunity to work for and with the most interesting, most energetic and caring individuals that make up the Technology Transfer Family. Last but not least what can I say about the Center's staff who continue day after day to humor me when crunch time gets near. Amy tells me " breathe in and out slowly, it will be OK" and Roy assures me that the job will get done, and it does. What a great group!! The Center can only continue to grow and prosper with Amy and Roy around to carry on the program.

Again, let me bid you farewell and thank each and everyone of you, my friends, for all the help, support and pleasure that you have given me throughout my career. Good Luck in all your future endeavors.

A CAREER IS LIKE A LOCAL STREET OR HIGHWAY, HOPEFULLY SMOOTH BUT SOMETIMES ROUGH IN SPOTS. JUST TRY TO AVOID THOSE DARN POTHOLES.

Have a very safe and happy Holiday Season!

Willy Scheller

Technology Transfer Program Manager

Calibration of Spreaders

We are reprinting the "Calibration of Spreaders" article in this issue as a reminder to experienced and to inform new snow and ice personnel about the importance of calibrating spreaders. Economically, this procedure can stretch your winter maintenance budget by getting more miles out of your salt stockpile.

Different materials will spread at different rates at the same setting, so spreaders must be calibrated using the materials that will be used.

Spreader Calibration Procedure

Calibration of spreaders is simply calculating the pounds per mile discharged at various spreader control settings and truck speeds by first counting the number of auger or conveyor shaft revolutions per minute, measuring the salt discharged in one revolution, then multiplying the two and finally multiplying the discharge rate by the minutes it takes to travel one mile.

With hopper-type spreaders, specific gate openings must be calibrated. Measure from floor of conveyor to bottom edge of gate.

Each spreader must be calibrated individually; even the same models can vary widely at the same setting.

Equipment Needed:

1. Scale for weighing.
2. Canvas or bucket/collection device.
3. Chalk, crayon or other marker.
4. Watch with second hand.

Calibration Steps:

1. Warm truck's hydraulic oil to normal operating temperature with spreader system running.
2. Put partial load of salt on truck.
3. Mark shaft end of auger or conveyor.
4. Dump salt on auger or conveyor.
5. Rev truck engine to operating

(Continued on page 3)

Calibration of Spreaders

(continued from page 2)

RPM (at least 2000 RPM).

6. Count number of shaft revolutions per minute at each spreader control setting and record.
7. Collect salt for one revolution and weigh, deducting weight of container. (For greater accuracy, collect salt for several revolutions and divide by this number of turns to get the weight for one revolution.) This can be accomplished at idle or very low engine RPM.
8. Multiply shaft RPM (Column A) by discharge per revolution (Column B) to get discharge rate in pounds per minute (Column C), then multiply discharge rate by minutes to travel one mile at various truck speeds to get pounds discharged per mile*

**For example, at 20 MPH with 30 Shaft RPM and 7 lbs. discharge - 30 x 7 = 210 x 3.00 = 630 lbs. per mile.*

Calibrating Automatic Controls

Automatic controls come with factory calibration cards that indicate the proper rate of spread for each setting. However, when there is a need to calibrate, use the following steps:

1. Remove or turn off spinner.
2. Set auger on given number, such as No. 2.
3. Tie sack or heavy canvas under discharge chute.
4. Mark specific distance, such as 100 or 1,000 feet.
5. Drive that distance with spreader operating.
6. Weigh salt collected in sack or canvas.
7. Multiply weight of salt by 5.2 (in case of 1,000 feet) or 52.8 (in case of 100 feet).

This will be the amount of salt discharged per mile, which remains constant regardless of speed, but calibration must be done for each control setting.

CALIBRATION CHART

Agency: _____

Location: _____

Truck No.: _____ Spreader No.: _____

Date: _____ By: _____

GATE OPENING (HOPPER TYPE SPREADERS				POUNDS DISCHARGED PER MILE								
	A	B	C	MINUTES TO TRAVEL ONE MILE								
Control Setting	Shaft RPM (Loaded)	Discharge Per Revolution (Pounds)	Discharge Rate (Lbs/Min)	5 mph x 12.00	10 mph x 6.00	15 mph x 4.00	20 mph x 3.00	25 mph x 2.40	30 mph x 2.00	35 mph x 1.71	40 mph x 1.50	45 mph x 1.33
1		This weight remains constant										
2												
3												
4												
5												
6												
7												
8												
9												
10												

(Reprinted with permission from The Snowfighter Handbook 1999 by the Salt Institute.)

Manual on Uniform Traffic Control Devices

by Teresa Price, P.E., Local Policy Engineer, Bureau of Local Roads and Streets

In accordance with Section 11-301 of the Illinois Vehicle Code (625 ILCS 5/11-301), the department has adopted the Millennium Edition of the National Manual on Uniform Traffic Control Devices (MUTCD) along with the Illinois Supplement as the official manual for traffic control devices for use in Illinois. MUTCD Revision 2 is currently in rulemaking. Local highway authorities ordering the manual should take into consideration the Federal Highway Administration's (FHWA) plan of reprinting the manual once this rulemaking is finalized next year.

Any newly installed traffic control devices should be in conformance with the standards contained in the MUTCD manual. However, the manual does contain phase in periods for compliance on certain devices and practices specified in the new addition. The list of compliance dates along with very beneficial information is available on the FHWA web site at http://mutcd.fhwa.dot.gov. The FHWA web site along with the MUTCD and the Illinois Supplement, which also contains the list of compliance dates, are available on the IDOT web site at http://www.dot.state. il.us/mutcd/utcdmanual.html. Each web site gives local highway authorities the ability to review and/or print out the list of compliance dates, the Manual and/or supplement.

The millennium edition contains new terminology and format as well as a Part 5 with standards on traffic control devices for low-volume roads. The format used in the manual is as follows:

Standard means that it is mandatory and is shown in bold.

Guidance means recommended and is shown in normal font.

Option means permissive and is shown in small font.

Support is simply a statement providing useful information and is also shown in smaller font.

For interpretations of standards in the manual, a local highway authority should send in a written request to the Illinois Department of Transportation, Bureau of Operations, 2300 South Dirksen Parkway, Room 009, Springfield, IL 62764. The Bureau of Operations will either send a response to the local agency or forward the request to the FHWA.

2002 ISPE Award

Dave Dietzel, Madison County Engineer was awarded with the Professional Engineering Management Award from the Illinois Society of Professional Engineers (ISPE) at their annual awards breakfast on July 20, 2002 in Rockford. The PE Management Award is made each year to a professional engineer serving in a management capacity that provides leadership in the achievement of technical goals, encourages and inspires technical and professional achievement, and demonstrates a continuing concern for professional ethics.

Dave Dietzel, Madison County Engineer

Dave will add this distinguished award to his record of service, which includes serving as Past President of IACE, Past President of the ARTBA TOD, Urban County Engineer of the Year and T.H.E. Zone Engineer of the Year.

Congratulations to Dave on receipt of this prestigious award!

2002 Excellence In Storage Winners Announced by the Salt Institute

Eleven salt storage facilities have won national recognition for the environmental sensitivity of their program as 2002 winners of the Salt Institute's annual "Excellence in Storage Award" competition.

They were selected from among a record number of applicants and include from Illinois - the Village of Orland Park.

In addition, several facilities were recognized for "Continuing Excellence in Storage." These included from Illinois: the City of Elgin, Mount Prospect Public Works, Village of Arlington Heights, Village of Buffalo Grove and the Zion Public Works.

"These outstanding public works managers deserve credit for the time, effort and professionalism they've taken to invest tax dollars in storage facilities for the salt they use to keep roads and streets safe and passable during winter conditions," noted Salt Institute President Richard L. Hanneman. "This honor recognizes their high standards of environmental protection and worker safety.

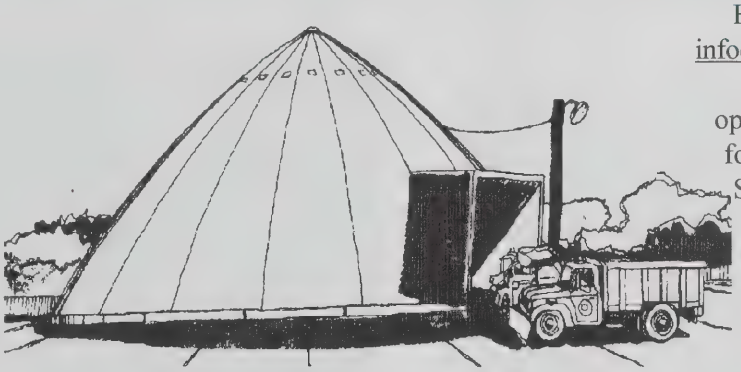
Successful applicants meet rigorous standards which include employee safety programs, proper facility "housekeeping" measures, and protection against rain or snow.

"Winners exemplify state-of-the art commitment to environmental and worker protection," explained Andrew C. Briscoe, Public Policy Director of the Salt Institute who chaired an "outside" panel of experts which determined the awards.

Applications for the year 2003 competition may be obtained from the Salt Institute's web page at www.saltinstitute.org/40.html or by contacting the Salt Institute at:

700 N. Fairfax St., Suite 600
Alexandria, VA 22314-2040
By Phone 703/549-4648 or
By fax at 703/548-2194 or
By e-mail at
info@saltinstitute.org.

Facilities must have been in operation one full year to qualify for entering the Excellence in Storage Award contest.



New Snow and Ice Control Videotape

The Technology Transfer Center has received the new 2002 Snow & Ice Control videotape produced by the IDOT Bureau of Operations. This video covers areas such as different plows and blades, prestorm preparation, plowing techniques, and post storm cleanup. The tape is approximately one hour and is broken up into six different categories. A copy of the tape can be requested through the Center's library by ordering tape 077. The video is also available for duplication by providing the Center with a blank videotape. If you have any questions, contact the Center at 217/785-5048.

2002 APWA SNOWFIGHTERS ROADEO ... Another Successful Year

The fifteenth annual Illinois Chapter APWA Snowfighters Roadeo took place on October 4th at the Tri-Township Park in Troy, Illinois. There were 40 teams participating from 19 local agencies. The Roadeo consisted of testing the skills of a two-person team in a three-part exercise consisting of a written test, the circle of safety and the obstacle course.

Written Test:

Teams were tested on technical snow and ice control questions, rules of the road, and safety-related questions. The test consisted of 40 questions with a point value of 2.5 points each for a total of 100 points. Combined, a perfect team score would be 200 points. In addition, there were five bonus questions which were not counted in the overall score, but would have been used as a tie breaker in the written test or the circle of safety test.

Circle of Safety:

Teams were tested by correctly identifying as many as possible of the 20 operational defects in the allotted 3.5 minutes. The defects were located on the plow, hitch, spreader, in the hydraulic system, and on the truck itself. One team member was responsible for recording the located defects on a "Circle of Safety Defect Sheet." Each defect was worth five points for a total score of 100 points.

Circle of Safety Competition.

Obstacle Course:

Teams were tested by their maneuvering through nine obstacles. Each obstacle was worth 40 points with a total score of 360 points. The obstacles included: plowing around a parked vehicle, inside curve, offset alley, serpentine, driver exchange (no points), backing, straight line, outside curve, stopping accuracy and time.

Manuevering through the Obstacle Course.

Overall Grand Total Winners:

1st Place	Madison County	Kuehnel/McCormick
2nd Place	Madison County	Wiemers/Johnson
3rd Place	East Peoria	Hucal/Tucker

Written Test Winners:

Madison County Kuehnel/McCormick

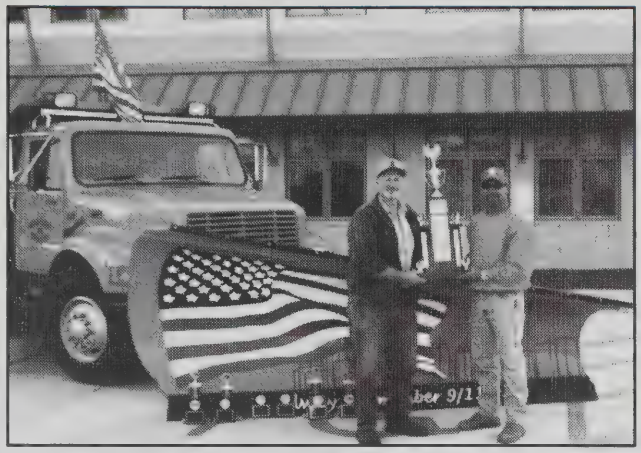
Circle of Safety Winners:

Madison County Kuehnel/McCormick

Obstacle Course Winners:

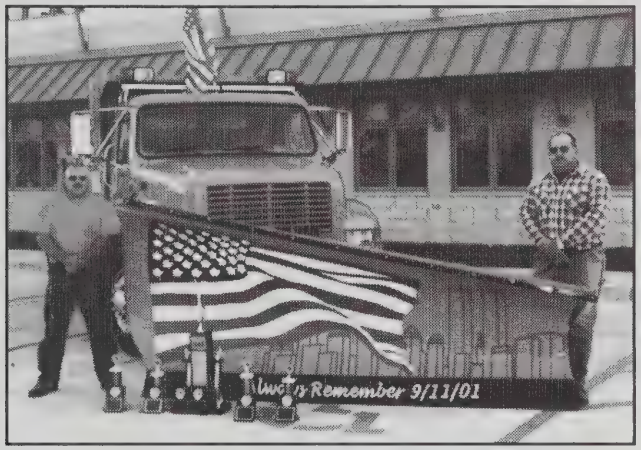
Madison County Wiemers/Johnson

The cooperation and assistance from all cities is what makes this an annual event to look forward to. The Technology Transfer Center would like to congratulate the winners, the Snowfighters Roadeo Committee from Madison County, and the judges on a job well done!

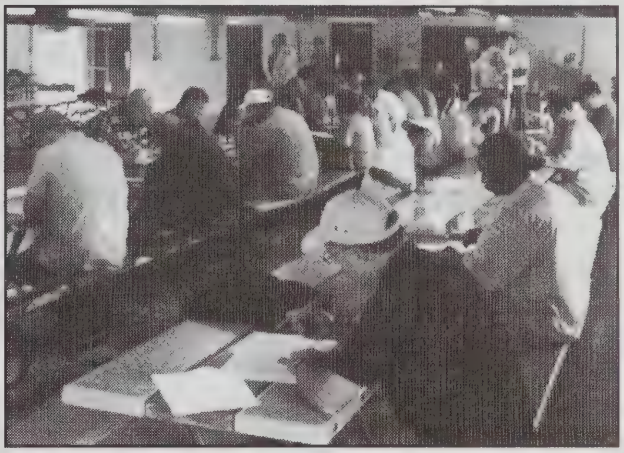


First Place Overall Winners: Dave Kuehnel and Steve McCormick from Madison County.

Winners of the Best Dressed Snowplow: the City of Champaign.

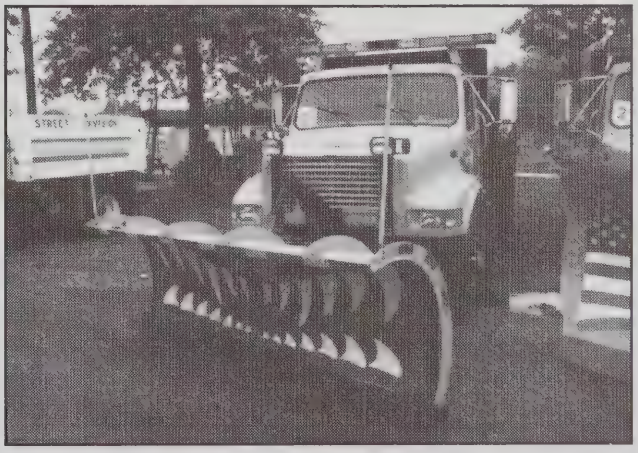


Second Place Winners: Mike Wiemers and Terry Johnson from Madison County.



Participants concentrating during the written test.

Third Place Winners: Tim Hucal and Bret Tucker from the City of East Peoria.



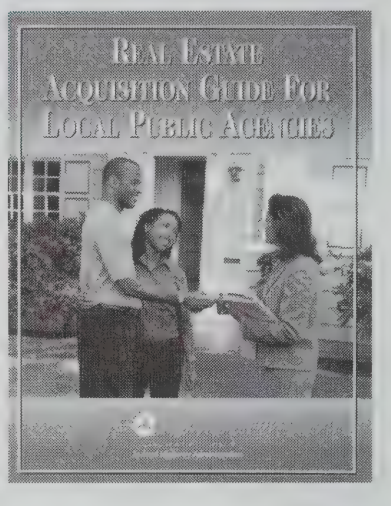
Snowplow design entry from the city of East Peoria.

Real Estate Acquisition Guide for Local Agencies

This guide is intended to serve as a basic reference for local agencies who receive Federal highway funds for projects involving the acquisition of real property. Eligibility to receive Federal Funds depends upon compliance with Federal laws, regulations and policies.

There are several reasons that the Federal Government retains an interest in the acquisition of real property for federally assisted projects. The most important is ensuring that the Fifth Amendment mandates of due process and just compliance are met when property owners are affected by Federal projects. Another is the goal of acquiring property without delaying the project for which it is needed. Finally the Federal government is concerned that the federal tax dollars used to fund public improvement projects are spent in an appropriate fashion.

Local Agencies may obtain a copy of this publication by writing, faxing or e-mailing a request to the T2 Center. All appropriate information for addressing your request is available on the back page of this newsletter.



Winter Driving Skills

PROBLEM: The chances of an accident increase with bad weather during the winter months.

WHAT WE CAN ALL DO: Here are some tips for winter driving:

* Slow down on ice or snow. Braking distances on ice can increase from four to ten times normal. Avoid slamming on the brakes.
* In case of a skid, turn the front wheels in the direction of the skid.
* If you can see a slick spot ahead, slow down gradually by taking your foot off the accelerator to keep more control of your vehicle.
* Keep your windshield washer tank completely full.
* When it snows, clean both the front and back windows of your vehicle completely. A peephole is simply not enough and you'll probably be stopped by the police.
* Make sure you have proper snow tires or all-weather radials in good condition.
* Give yourself extra time to get where you need to go.

A Visit From the Malaysian Highway Authority

On August 30, 2002 the Illinois Department of Transportation (IDOT), Bureau of Local Roads and Streets Technology Transfer (T2) Center, hosted a visit by a study team from the Malaysian Highway Authority (MHA). The MHA is in the initial planning stage of establishing a management and training center for their employees and organized this study team tour to evaluate various training centers in the U.S. They focused on training offered, management, and day-to-day operations. Six MHA representatives participated in tours of the California Department of Transportation, the Illinois Technology Transfer Center, the Federal Highway Administration (FHWA), National Highway Institute and Turner Fairbanks Research Laboratory, and the New Jersey Turnpike System. The information gained from this tour will be used as a model to develop their training center.

The study team's interest in the Illinois T2 Program peaked after visiting the T2 page on the IDOT Web site and finding the services that we offer. The fact that our center is located within the Department of Transportation and the staff size added interest since we are similar in organizational responsibility. The MHA was originally established as a statutory body for the purpose of supervising and executing the design, construction, operation and maintenance, the collection of tolls, and contract administration for the Toll Highway System in Malaysia. However, with the advent of privatization, highway project implementation is now carried out by private sector or concession companies (contractors). The MHA now oversees the rights of the government in relation to the privatized toll highway projects during the pre-construction, construction and operation, and maintenance phases. This change in responsibility has encouraged the MHA to consider the need to train not only their personnel but also the private sector concession company employees. By providing training, the MHA feels that they can realize a higher quality toll highway system more economically.

The study team consisted of four officials from the MHA: George George, Director General; Ismail Md Salleh, Monitoring and Regulatory Director; Mr. Sazali Harum, Central Regional Director; Mdm. Haslina Hashim, Land Liaison Officer; and two concessionaires: William Tan Chee Keong and Mr. Khew Check Kiet.

Much of the discussion in the meeting centered around each organization's structure and responsibilities in relation to the benefits and methods of distributing information through training. Even though each of us is focusing on a different level of highways, the methods used by the T2 Center to disseminate information to local agencies through the Technology Transfer process (i.e., training seminars and classes, Video/Publication Library, the Quarterly Newsletter) were of great interest to the study team. Particular interest was shown in the selection and level of training that we offer, our instructors, and the location of classes. Also of interest were the Video/Publication Library and our concept of on-site training using videotapes and publications from the Library. The study team was provided with copies of the Training Program, the Quarterly Newsletter, a videotape on Preventative Maintenance, and a publication on Work Zone Safety for their later review and consideration for their program.

A surprise to us was the interest that the study team showed in Abraham Lincoln and Historic Route 66. In light of this interest, a tour of Lincoln's home and the historic area was arranged after lunch. It certainly was a Kodak moment.

The study team departed with a wealth of information, grateful that the Illinois T2 Center was one of their stops on the tour. We believe the meeting was technology transfer on a global scale.

Focus on Current Issues: The Importance of Retroreflectivity

By Greg Schertz, Safety Engineer, Federal Highway Administration

In the United States, almost one-half of all traffic fatalities occurs during the dark hours of evening, night, and early morning. However, only a quarter of all travel takes place during those same hours—a startling and grave statistic.

There are a number of reasons for this disparity, such as intoxicated and fatigued drivers. It is also known that drivers receive much less guidance information at night than during the day. For example, during daylight hours, drivers have a number of visual cues, such as signs, pavement markings, roadside vegetation, guardrails and textured shoulders, making driving relatively simple. This bounty of visual cues allows drivers to focus less on their proper position on the roadway.

At night, however, this changes drastically. On a dark road, nearly all cues disappear except those that are retroreflective (signs and markings). Those remaining cues become critical, and should they become so worn that they are no longer visible, the chance to miss the information becomes greater, resulting in a greater chance of driver error, and a potential crash.

Retroreflectivity is the property of a material that returns light to the source. In the case of roadways at night, the retroreflective materials may be traffic signs and pavement markings and the source is usually the headlights of a vehicle. Because a driver's eyes are close to a vehicle's headlights, some of the light returned from retroreflective materials reaches the driver's eyes. The amount of light from an object reaching the driver's eyes will have a great impact on how bright that object appears to the driver. Therefore, retroreflective materials that are efficient in returning light to a driver's eyes may appear brighter to the driver than those that are not.

Unfortunately, the retroreflective characteristics of traffic control devices gradually deteriorate over time. As a result, it is important to replace traffic control devices prior to the time when they no longer meet the needs of the nighttime driver. The major question is not whether the devices should be replaced, but when. How do we know when the device no longer meets the needs of the driver?

To address the issue of retroreflective deterioration, the national Manual On Uniform Traffic Control Devices (MUTCD 2000) states, "Regulatory, warning, and guide signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night…" and "Markings that must be visible at night shall be retroreflective unless ambient illumination assures that the markings are adequately visible." These standards have remained essentially unchanged for 45 years. The MUTCD 2000 also states "To assure adequate maintenance, a schedule for inspecting (both day and night), cleaning, and replacing signs should be established."

Although retroreflectometers are an excellent tool for evaluating the efficiency of retroreflective materials, they are not the only resource available to judge the nighttime visibility of traffic control devices. Nighttime visual inspections of signs and markings can be one of the best methods/tools. Establishing a process to evaluate your jurisdiction's signs and markings for nighttime visibility, and maintaining those devices appropriately, can be a great service to the public and possibly assist your agency in court cases involving visibility of traffic control devices.

The FHWA is currently developing guidance for public agencies to determine the appropriate level of retroreflectivity required by nighttime drivers. Although new retroreflective standards and guidance are not currently in place, all indications are that they will be developed in the near future. Based on the current requirements in the MUTCD, and the knowledge that updated guidelines will be produced, some agencies have initiated nighttime inspection processes to evaluate the visibility of traffic control devices. A systematic process to replace worn out devices can then be implemented to ensure that limited budgets are used efficiently to meet the needs of the nighttime driver.

For additional information, please visit the FHWA retroreflectivity web site at [safety.fhwa.dot.gov/programs/retroref.htm] or contact Greg Shertz [greg.schertz@fhwa.dot.gov].

Snowfighter Workshop VIII

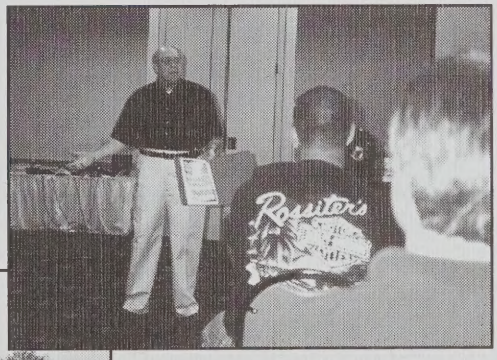
by Roy Williamson, Training Development Technician, Illinois Technolgoy Transfer Center

With over 140 state and 160 Local Agency snow and ice personnel in attendance, the Snowfighters Workshop once again was a huge success. The location of the workshop this year was the Holiday Inn in Normal which provided plenty of room for both inside and outside vendor displays and adequate room for speakers to present an array of interesting topics. Vendors from Illinois and surrounding states presented exhibits and displays of the latest advancements in snowfighting technology. Equipment displays outside the hotel featured equipment ranging from plows and spreaders to snowblowers and tank setups for wet applications. While inside, exhibitors demonstrated seat and electronic controls, snow and ice materials and other miscellaneous products. Vendors welcomed questions on their equipment, spraying techniques, and other products that were being exhibited.

The scope of the workshop was of course Snow and Ice Control with an emphasis on keeping roads clear and drivable which is always the focus of snowfighters. A well known speaker by the name of Bob Ash gave a motivational speech each day that questioned how we are dealing with Life and Laughter since 9-11-01 and where we've focused our attention, our thoughts and actions. ERI for state employees was a topic in many discussions relaying concern of services and support for many other people throughout the state, as well as other budgetary constraints. Being my first workshop I can see how important our training program is to local agencies and I feel the next couple of years may be Technology Transfers busiest yet. The workshop was very well organized and planned. Overall the workshop appeared to be very successful.

Congratulations to the District 3 Bureau of Operations personnel who made it all happen!

Snow and ice control truck on exhibit.



Motivational speaker, Bob Ash, on Life Lessons.

Snow and ice control equipment on display.

Illinois Interchange

The Technology Transfer (T^2) Program is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation. Its purpose is to interchange the latest state-of-the-art technology in the areas of roads and bridges by translating the technology into terms understood by local and state highway or transportation personnel.

The Illinois Interchange is published quarterly by the Illinois Technology Transfer Center at the Illinois Department of Transportation. Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect views of the Illinois Department of Transportation, or the Federal Highway Administration. Any product mentioned in the Illinois Interchange is for informational purposes only and should not be considered a product endorsement. Subscriptions are free and are available by writing to:

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Printed by the authority of the State of Illinois -12/02 - 4,100

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